the Army Space Journal

A Professional Journal on U.S. Army Space Operations

2006 Winter Edition Vol. 5, No 1
Published by U.S. Army Space and Missile Defense Command

the Army Space Journal

Communicating Space to the warfighter

The U. S. Army Space and Missile Defense Command publishes **the Army Space Journal** quarterly, with special editions as required. The publication consists of four sections, FROM THE TOP – Leadership Updates; JOURNAL FORUM – Space Topics; TIP OF THE SPHERE – SMDC Features; and FLIPSIDE – Space Cadre News /Features.

The Journal provides a forum through which Space operations professionals can disseminate professional knowledge and furnish information within the U.S. Army. The purpose is to increase the effectiveness of Space operations through a professional discussion of events and lessons learned. It is also intended to inform the Army warfighter on Army Space issues.

Commanding General
LTG Larry J. Dodgen

Command Sergeant Major
CSM David L. Lady

Deputy to the Commander for Research, Development & Acquisition
Michael C. Schexnayder

Deputy Commander for Operations
COL Roger F. Mathews

Director, FWC-DCD
COL Tim Coffin

Director, SMDC Public Affairs Office
William Congo

EDITORIAL STAFF

Editor in Chief
Michael L. Howard

Managing Editor
Richard Burks

Senior Editor/Technical Director
Sharon L. Hartman

Contributing Editors
Donald Montoya
MAJ Laura Kenney
Brian Hermes
Ed White

Comments, inquiries and manuscripts should be sent to the Director, Future Warfare Center, Directorate of Combat Development, ATTN:
Richard Burks
1330 Inverness Dr., Suite 440
Colorado Springs CO 80910
Telephone: 719-622-2902
Fax: 719-622-2951
E-mail: Space.journal@us.army.mil
Worldwide Web site: www.SMDC-armyforces.army.mil/SpaceJournal

Distribution is made to the general public, Functional Area 40 officers and associated military officers, civilians, and contractors. Changes to addresses and requests for this publication should be made to the Future Warfare Center, Directorate of Combat Development address listed above.

The Army Space Journal is an authorized publication of the U. S. Army Space and Missile Defense Command in accordance with AR 25-30 and AR 360-1. The Commanding General, U. S. Army Space and Missile Defense Command, has directed that the publication of this periodical is necessary in the transaction of the public business as required by law. Use of funds for printing this publication were approved by the Commanding General in January 2001.

The views and opinions expressed in the Army Space Journal are not necessarily those of the Department of the Army or U. S. Army Space and Missile Defense Command.

From The Top

Leadership Updates

SPACE AND MISSILE DEFENSE 4

Flattening with the New Common of Space

LTG Larry J. Dodgen

LTG Larry J. Dodgen refers to Space as a "common" based on the definition of 19th century naval strategist Alfred T. Mahan. Mahan described the seas as a "wide common" and a "great highway." Participation in this common enhanced or diminished a nation's position and power. Mahan also emphasized that control of this common enabled control of the battlespace. Dodgen believes that the ubiquitous nature of Space and cyber-space and their fundamental importance to national power support the view that these dimensions should be considered as "commons." He explains that our nation has acknowledged ready access to the internet and is inextricably linked to our broader economic, social, and military interests. Space-based capabilities remove the barriers – or flatten – restrained access to the vast information stores available via the internet.

OPERATIONS 6

Let's Talk

COL Roger F. Mathews

Deputy Commander for Operations, COL Roger F. Mathews defines Space as a common denominator in the support of U. S. Strategic Command's mission areas, challenging Space professionals to continue to assess how to use Space-based assets across the full spectrum of mission sets the Army is called on to provide. Mathews also cites the urgency to build a Space "bench" of trained and ready Space professionals to meet current and future needs and challenges the entire Space community to continue looking for new, innovative ways to support Army and Joint warfighters.

COMBAT DEVELOPMENT 8

The View from (Army) Space

Terry Nelson

What it represents, promotes and endeavors to put in front of the Space Community. Insight on the people, positions and future requirements affecting Space related areas. We welcome your opinions, views and your participation in this publication.

The Future of the Space Cadre 9

Ed White

In this first-of-a-series article, Ed White describes the perceived need for trained and ready Space forces and how this need has become more and more obvious since the successes of Operation Desert Shield/Desert Storm. He speaks to the recommendations of the January 2001 Space Commission Report and the Secretary of Defense's subsequent direction to the services to develop and maintain a cadre of Space-qualified professionals comprised of military and civilian personnel in sufficient numbers to effectively represent their military departments. The article describes what Space professionals and Space enablers are and describes in more detail the conclusion of the study.

Contents

Issue Focus:
Space success at UFL 2005

2006 Winter Edition

Journal Forum
Space Topics

Enhancing Joint Command and Control of Army Space Forces 10
How Army Space assets will support the Ground Component Commander
Exercise Ulchi Focus Lens is an annual exercise that takes place on the Korean peninsula. In this article by BG Jeffrey C. Horne, COL Kurt S. Story, and LTC Troy McKeown, the trio describe how Army Space forces will be managed in the future to support the Ground Component Commander in any exercise or real world operation. Managing and allocating U.S. Space assets is a dynamic and fluid discipline that demands interaction with all branches of the armed services and a myriad of "three-letter" national agencies within the intelligence community and others. As the 1st Space brigade passed its MTOE fielding date in October, 2005, it worked to developed doctrine, tactics, techniques and procedures (TTPs), and command and control relationships for today's Space operations across the spectrum of conflicts within the joint realm.

Enabling Space warriors for the 21st Century 20
Eight new Space capabilities for FA40s
MAJ Robert Guerriero
Based on the concept that Space support to tactical operations is in its infancy, MAJ Robert Guerriero discusses eight new capabilities that can support warfighter and combat support efforts. As new Space-based and ground-based capabilities are developed and fielded, FA40s will have an unprecedented ability to use them to impact operations. With new systems and capabilities designed specifically to support the tactical user and fielded to FA40s and Space Support Elements (SSEs) to deliver directly to the warfighter, the impact of Army Space on operations will grow substantially. Guerriero describes eight new capabilities that should be considered for fielding to Space Support Elements and Space operations officers in tactical assignments.

Tip of the Sphere
SMDC Features

SMDC/ARSTRAT Gets new DCO
Sharon L. Hartman 24

Duty, Honor, Country
193rd Captain is likened to one of Army's great general's
Sharon L. Hartman 26

SMDC/ARSTRAT NCO, Soldier vie for DA title
Sharon L. Hartman 28

Leading from the front
SMDC/ARSTRAT inducts six more Soldiers into SGT Audie Murphy Club
MSG Dennis Beebe 32

Command in Brief
- ARSST Team 2 Members deploy to Iraq 34
- Spouses of deployed Soldiers honored 34
- Army/Air Force football 36
- Tour de humility 38
- 100th GMD Soldier pedals his way to victory 40
- Delta Diablos raise 38,000 pounds of food during food drive 42
- Missile Defense flight test successfully completed 43

The Flipside
Space Cadre News/Features

Historical Feature
The History of JTAGS
A case study for rapid fielding, multi-Service R&D, and major impacts at tactical, operational and strategic levels 1F

Space in Operations
Organize as we Fight: Army Theater Missile Warning
MAJ J. Dave Price 4F

FA40 Space News
Space Professional Personnel Update 6F
Training Insights 7F

Space Operations Officer Qualification Course Students visit New Mexico Space Facility
Tom Coleman 8F

Space Notes
Professional Reading 10F

What you didn't know ...

Every Soldier has a story to tell.

It is easy to lose sight of this simple point. Today tons of information hit us as we work through routine tasks in the course of a day, week, month or year. Google any word or phrase you want and you will get the welcome news that the search engine has found one million hits for you search parameters. Check your e-mail every five minutes and you have 10 new notes with changing details and challenges. E-mails fill our inboxes with more information by the hour. Newspapers, Web sites, television news shows, radio talk, magazines all bombard us with information.

Is it really helpful to add more information to this pile? I hope so. The way I see it, everything we do in the Army revolves around taking care of Soldiers in our Nation's defense. And everything we do in the communications arena — to include publishing *the Army Space Journal* — point directly to this bull's eye on the target. The tagline in this business of communications is that every Soldier has a story to tell, but it's deeper than that. It is not just every Soldier, but every Soldier and Department of the Army civilian and contract employee involved in this fight has a story.

For example, the civilian sitting behind a desk whose efforts push vital information forward to the warfighter so he can do his job better, the contractor who ensures the right supplies reach the right people in theater so they can do their jobs, or the Soldier who deploys in harms way — what is his day to day life like?

The goal of our communications enterprise — and everyone in the Army is part of this enterprise — is to get the word out. Our focus with information we put into *the Army Space Journal* centers on Soldiers, along with Army civilian and contract employees, involved in providing Space-based capabilities to help the warfighter effort. We welcome articles across a wide spectrum — from articles written on technical issues members of the broad Space cadre face to lighter articles that help readers gain an understanding of the Space community inside the Army. If you have ideas for stories or would like to write on an issue, please let us know.

With all that said once again, the news from Space is good. I apologize for the delay in publishing. I believe the team has put out another great edition. Please remember as you read: Every Soldier, civilian and contract employee involved in Space-related jobs has a story to tell. Also, please remember my offer as you go through your daily tasks in Space-related jobs: Let us help you tell your story.

Happy reading and I hope to hear your story soon.

— Michael L. Howard
Editor in Chief

Letter to the Editor

Congratulations

Congratulations on your fine efforts for the most recent issue of the Army Space Journal. I received my copy a few days ago. I am once again impressed with your phenomenal ability to pull together such a diverse compilation of useful information. Congratulations!!

I also applaud your incremental inclusion of information about the Soldiers assigned to the 100th Missile Defense Brigade and how missile defense and Space are inter-related. A solid understanding of this relationship is obviously crucial for all missile defense — Space professionals. Well done, indeed!!

Again, thanks so much for the superb effort. I look forward to working with you to help provide this outstanding publication for the Space professional community.

— Thomas Askins
Senior Military Analyst
SYColeman

"Parochial" attack criticized

The parochial attacks in your Spring 2005 issue by Glen Collins on the Air Force and its stewardship of the military Space program are troubling not just because it grates on the ear in this era of jointness, but also because he could be so misinformed on basic facts.

He states that "the very reasons that created the Air Force out of the Army in the 1947 National Security Act are all exactly the same reasons for creating the U.S. Space force." That is absurd. In World War II the Army Air Forces were not only massive — consisting of over 2.2 million personnel and 218 combat-ready groups — but they had also performed a host of crucial missions that have never been attempted by Space forces. During the war the AAF flew not only reconnaissance, surveillance, airlift, artillery spotting, liaison, communications relay, electronic warfare, mine laying and similar support missions, but more importantly, it also flew hundreds of thousands of force application missions. In other words, it bombed, strafed and rocketed countless enemy targets both on the front lines and deep in the enemy's rear — both on land and at sea. On the other hand, there are currently no weapons in Space. Although force application is a stated potential mission, that mission has not yet been performed by U.S. Space forces. Perhaps someday weaponization of Space will take place — but that is a thorny political issue that the military will not decide. Until and unless Space is weaponized and Space assets actually engage directly in force application — not simply identifying targets or relaying data or providing GPS coordinates — there will never be a comparison between Space and the AAF of World War II as Collins attempts to do in his letter. Put another way, today the military Space forces of the U.S. are engaged solely in force support to all the services and other government agencies; until they can conduct an independent mission, until they can actually employ force — as could the AAF and which led to its independence, there is little rationale for Space becoming a separate service.

Collins then states: "The Air Force continues to underfund the Space mission remaining focused on air forces as the priority and often taking Space designated budget to further air programs." This too is simply false. The Air Staff has produced a stunning sand chart graph (below) that shows the total budget authority for all USAF programs from the 1960s until the present day. (Note: total budget authority includes R&D, procurement, operations, maintenance and personnel; in short, everything.) The facts show that at present between 25 and 30 percent of the entire USAF budget is going towards Space, and that number is increasing. At the same time, it is spending only 25 percent of its budget on combat aircraft — fighters, bombers, missiles, special operations, and munitions — and that number is decreasing. In other words, the USAF spends more on Space than it does on combat aircraft. How can anyone claim that those statistics are indicative of underfunding? The USAF has long prided itself on the fact that it provides over 90 percent of all DoD funding for military Space. If Collins seriously believes that is too little, than we all need a different dictionary.

Finally, Collins slams the Air Force for being insufficiently supportive of U.S. Strategic Command's new functional structure that includes a commander for "Space and Global Strike." He murmurs that this new commander will be the three-star commander of Eighth Air Force, not the four-star commander of Air Force Space Command. Why? Collins hints darkly that "the reason behind these decisions is also obvious, but unstated." Really? Actually, the reason is quite clear and logical. STRATCOM has stood up six new functional commands, one of which is Space and Global Strike. (The other five are Missile Defense, Network Warfare, ISR, Global Network Operations and the Joint Information Operations Center.) All of these functional commands are headed by either two or three-star officers. Why does Collins believe that Space and Global Strike is being slighted by not having a four-star commander when none of the other functions do? Moreover, as noted above, the commander of AF Space Command has no conventional force application assets at his disposal. Whereas, the commander of Eighth Air Force has under him the B-2s and B-52s that would be expected to actually conduct such Global Strike missions. (Eighth Air Force also commands the air-breathing ISR assets required for such missions: Joint STARS, Rivet Joint, Compass Call, the U-2, etc.) The

(See Letters, page 48)

Letters to the editor are welcome and encouraged. **The Army Space Journal** *reserves the right to edit for brevity and clarity. Unfortunately all letters cannot be printed due to Space. You may send letters to the editor in chief at michael.howard@smdc-cs.army.mil*

Flattening with the New Common of Space

LTG Larry J. Dodgen
Commanding General,
U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command

By LTG Larry J. Dodgen

A little more than 100 years ago, the naval strategist and writer, Alfred T. Mahan, described the seas as a "wide common … a great highway … over which men may pass in all directions."[1] In Mahan's time, the seas were the international domain of trade and intercontinental commerce. Nations and states aspired to access and command the seas so they could establish, protect and expand their economic or political interests. To the degree this was possible, participation in this common enhanced or diminished a nation's position and power. Mahan also emphasized that control of this common enabled control of the battlespace.

Looking more recently, Thomas Friedman takes the position the world has become "flat" in the sense that global changes in the past few years have contributed significantly to opening of international markets. Friedman also notes the rise of the Internet and easy access to vast amounts of information have "produced a global, Web-enabled playing field that allows for multiple forms of collaboration without regard to geography or distance."[2] This change is viewed as a paradigm shift that will create many opportunities for those who can and will take advantage of them.

The ubiquitous nature of Space and cyber-space and their fundamental importance to national power support the view these dimensions should be considered as "commons." Our Nation has acknowledged ready access to the Internet is inextricably linked to our broader economic, social and military interests. Space-based capabilities remove the barriers — or "flatten" — restrained access to the vast information stores available via the Internet.

Space enables capabilities that simply cannot be matched by terrestrially based assets. Intercontinental communications have been transformed to satellite-based means. Similarly, the hundreds of channels now available by satellite dish and satellite radio are eclipsing broadcast television and over-the-air radio. Equipment costs and subscriptions for these services have been "flattened," and are now within the financial means of most middle income families of western societies. Navigation, including in personal vehicles, is enhanced by near-real time Space-based global positioning system (GPS) satellites. Space-based assets facilitate billions of banking transactions each day.

Weather satellites, which generate about 90 percent of the forecasting data used in the U.S., have also significantly enhanced the accuracy and timeliness of predictions. The early analysis of the death tolls from the extraordinarily destructive 2005 hurricane season in the U.S. concluded thousands more people could have died if weather satellites would not have been available to provide advanced warning of impending danger. A member of Congress noted, "Without Space-based capabilities, it might have taken weeks to fully respond to the crisis. The Air Force's Defense Meteorological Satellite Program satellites revealed to emergency

The U.S. military currently enjoys a "command of the commons" that translates into an unparalleled capacity to leverage the capabilities of the oceans, air, Space and cyber-space, and the corresponding ability to mitigate their use by our adversaries.

management agencies those communities that lacked electrical power. Commercial remote sensing companies provided high-resolution satellite imagery to relief organizations, which helped determine the extent of the damage in specific areas."[3]

Space tourism has already developed a niche industry. Notably, between April 2001 and October 2005, three Space tourists — two Americans and one South African — made flights to Space and the International Space Station.[4] Although currently within the sole financial reach of the wealthy, this area is expected to expand — or "flatten" — substantially in the future.

Space: More than the Final Frontier

The U.S. military currently enjoys a "command of the commons" that translates into an unparalleled capacity to leverage the capabilities of the oceans, air, Space and cyber-space, and the corresponding ability to mitigate their use by our adversaries. If the adage is true that the present is the product of the past, then Mahan's concept of dimensions that have strategic value to national interests remains valid yet today. Mahan's view of the seas as a "wide common" has great similarity to the current view of the importance of Space.

Nations and groups with aspirations of increased influence try to erode our ability to operate effectively in the commons and attempt to control the commons for their own use. A nation no longer has to be a Space power to employ it. Barriers to entry into Space, which were so high just a few years ago, have now eroded or "flattened." Space-based capabilities are increasingly available to nations that in fact do not possess Space-based technologies. Many Space-based capabilities are now accessible to virtually anyone with a computer, credit card and broadband Internet access. New opportunities for others now serve as challenges to our own military forces.

The rapid convergence of information, communication and computer technologies has facilitated a variety of new military capabilities. Information gathered from and transmitted through Space is an integral component of American military operations. Space-based capabilities let our military forces communicate instantaneously, get near real-time information that can be transmitted rapidly from satellite to attack platform, and navigate to engagement areas. These capabilities also provide the flexibility to deliver precise effects without putting people and equipment in harm's way. As noted by Secretary of Defense Donald Rumsfeld, the use of Space "enables us to project power anywhere in the world from secure bases of operation."[5] Early warning of missile attacks and the precision of kinetic and non-kinetic attacks from the land, air and sea are also enhanced significantly with Space-based capabilities.

Just as technological and industrial dominance have played prominent roles in U.S. military victories during the past 60 years, Space-based capabilities are instrumental to our Nation's ongoing support of military forces involved in the Global War on Terrorism (GWOT). The changing nature of the threat has made the use of Space essential to our success. Today, Soldiers fighting in the GWOT confront adversaries who are adaptive, decentralized and elusive. President Bush recently described this enemy as one "determined and brutal, unconstrained by conscience or the rules of war."[6]

(See Common of Space, page 44)

Let's Talk

COL Roger F. Mathews
Deputy Commander for Operations, U.S. Army Space and Missile Defense Command/ U.S. Army Forces Strategic Command

By COL Roger F. Mathews

I consider myself a lucky man. I've just reported for a dream assignment as the deputy commander for operations at the Army's proponent for Space and integrated missile defense in beautiful Colorado Springs, Colo. Even as I smile with joy over my good fortune, I look forward to the challenges ahead.

This command, as you know, is responsible for more than just Space operations. We represent the Army's interests and support to U.S. Strategic Command (USSTRATCOM) in all their mission areas: integrated missile defense, global strike, information operations, elimination of weapons of mass destruction, and command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR).

The SMDC/ARSTRAT G-3 Plans and Exercise Division is aggressively coordinating with the Army's force providers, outside this command, to ensure that if the Army has capabilities that can support USSTRATCOM's mission areas, that they are offered up to USSTRATCOM and that they are written into the operations and concept plans. While the entire Army provides forces for these mission areas, not just SMDC/ARSTRAT, a common denominator to all of them is Space. From the vantage point of a former user of Space assets, I can assure you that your actions to optimize Space-based assets across the warfighting spectrum are important. When I commanded the 69th Air Defense Brigade, my unit depended on Space-based products: Joint Tactical Ground Station detection of missile events, satellite communication support for command and control, delivery of phone service, Non-Secure Internet Protocol Router Network and Secret Internet Protocol Router Network, Global Positioning Systems for positioning and firing accuracy, and imagery products to enable rapid deployment and support situational awareness. Our challenge is to continue to assess how to use Space-based assets to best enable mission success across the full spectrum of mission sets the Army is called on to provide.

While the command has taken on all the mission areas listed above, it has continued to push ahead with its responsibilities as the Army's proponent for Space and has developed innovative ways to optimize Space forces support to the combatant commanders. Over the last 18 months, the SMDC/ARSTRAT Directorate of Combat Developments Space Support Element (SSE) "Trail Boss," supported by the Future Warfare Center's Battle Lab has embedded Space support elements into the Army's deploying divisions. This initiative to place Space-based capabilities into the operational formations closer to the Soldier on the ground is a direct result of forward thinking Space professionals who identified a gap in our current operational capabilities and in conjunction with supported warfighters convinced the Army leadership that this investment

Because Space is so critical to the success of Army missions, it is imperative that the Army builds a "bench" of trained and ready Space professionals to meet its needs, and fulfill its responsibilities to the Department of Defense and the joint community.

was needed now to best serve our committed forces.

The new Theater Space Support Concept is another example of Space professionals figuring out how to best use Space forces. (See Fall 2005 ASJ for more details). One of the most immediate challenges is to continue this trend of making the most of the Army's Space forces to foster the growth of the Space cadre.

Because Space is so critical to the success of Army missions, it is imperative that the Army builds a "bench" of trained and ready Space professionals to meet its needs, and fulfill its responsibilities to the Department of Defense and the joint community. Over the last two years, SMDC Future Warfare Center's Directorate of Combat Developments (DCD) has completed a Force Management Analysis (FORMAL) to determine the best way to ensure that the Army has that "bench" of Space cadre. Under the course of action that COL Tim Coffin, Director of Combat Developments, briefed to the Vice Chief of Staff of the Army GEN Richard A. Cody on Jan. 4, 2006, the Space cadre will grow from the approximately 160 Space professionals (Functional Area 40s) to over 1,500 personnel.

It will include all military and civilian Space professionals and Space enablers. Space professionals are those whose principal duties include planning, developing, resourcing, acquiring, integrating, or operating Space forces, concepts, applications or capabilities. Space enablers are those whose primary career field is not Space, but who perform unique tasks or functions or may require skills to apply Space capabilities and who would need supplemental Space training that directly relates to their duty positions. Bringing this initiative to reality is going to be the challenge.

I also challenge the entire Army Space community to continue looking for new, innovative ways to support Army and joint warfighters, and as directed, civil authorities. Talk with each other through any means available. Use the Space Operations Network (SONET). I will ask the FA40 Proponency Office to set up video-teleconferences to facilitate the dialogue. I encourage you to write articles for this journal about the programs you are working on and to provide issues or suggestions for the Space community to discuss. Pick the minds of Space professionals outside the Army and figure out what this command and the Army can incorporate that will better serve warfighters. Together we have ample opportunity and room to continue growing and maturing every aspect of Space operations. With Soldiers serving in harm's way around the world, our support was never more needed than it is now.

General of the Army Douglas MacArthur said, "A good Soldier, whether he leads a platoon or an army is expected to look backward as well as forward; but he must think only forward." I think that is a good thought to close with. From what I've seen so far, the Army's Space operations community has done just as GEN MacArthur intoned. We will continue to do just that. Together we will continue to think forward and discover new ideas, concepts, tactics, techniques, procedures and equipment that will help us meet the challenges to better serve Army and joint warfighters. I am looking forward to meeting each one of you and working with you.

The View From (Army) Space ...

By Terry Nelson

I always look forward to the day the Journal hits the street because it signifies the culmination of a lot of effort, both individual and teamwork. The success of our recent initiative to solicit articles and comments to 'lighting rod' topics are reflected in some recent articles and to no less a degree, in the letters to the editor. They express some of the thoughts and feelings we all have on these topics. Articles and comments about contentious issues bring a more exotic flavor to the Journal and will, I hope, pique the interest of our readers. As there is no lack of opinions or controversial issues, the effort to solicit this type of input will continue. The Journal does not take sides on these issues and wants to promote a forum for readers to express their own opinions. Accordingly, we will endeavor to tap into those opinions for the benefit of the Space community. Feedback helps, so please let us know what you think.

Our Director, COL Tim Coffin, has been selected to command the 1st Space Brigade later this year. He brought a wealth of Space related knowledge from his previous assignment as the Chief of the Space and Missile Defense Division in DA G-35, where he led the integration of the Space effort across the DA staff. Although his time with us will be foreshortened, his extensive Space experience has helped all of us and we congratulate his selection for command. All of the evolving and expanding efforts associated with Space, especially Space support to the warfighter, continue to be our focus, and we are happy when we see one-of-ours given the opportunity to get down into the trenches.

In an effort to improve the support to our Space professionals, we plan to expand the input from the FA40 Proponency Office and the Training division, and these columns will continue to be featured in the 'Flipside.' Thanks to the efforts of LTC Clay Scherer, Larry Mize and others, the 'Flipside' will contain more relevant information for the FA40s and the expanding Space cadre community. We will also continue to provide a status of ongoing activities that impact (or will impact) the majority of our Space professionals. Since most of our FA40s will become part of the Space Support Element effort, we will do our best to keep you informed and you can expect an update in each edition. Highlighted in this edition of the 'Flipside' is the Joint Tactical Ground Station (JTAGS) activity and a little history of the unit to boot.

We strive to bring you cutting edge Space information, whether it is lessons from the battlefield or expanded knowledge from exercises and other sources. This issue captures Space activity in the Ulchi Focus Lens (UFL) exercise recently held in Korea. Hopefully, these insights and captured experiences will add to your overall understanding of the Space efforts in which we are all engaged.

The Army's requirement for Space capabilities is not decreasing. Neither the Army nor the joint forces of the future can perform across the full range of operations without leveraging our Space-based capabilities. The Modular Force will incorporate Space operations, Space control and Space systems into all of its land operations. Likewise, Space is impacting the other services much like it has the Army. This requires all of us to work closely with our sister-services as we develop joint requirements whenever possible and continue to improve on fighting jointly … as it should be. You will see in the Journal a more joint approach to many topics in an attempt to broaden our knowledge in the joint Space field. Subsequently, the Journal will continuously endeavor to tap into those efforts and provide the most current insights in these and other Space related areas. We will have several projects to report on, in the near future: publishing the Army Space Master Plan, defining the Army Space cadre, fielding of SSEs and Space Control … just to name a few.

These are exciting times with the Army in transition and the ongoing efforts to maximize its evolution into a lean and mean future combat force. Space will be an integral part of any success in this area. Let us know what you think and voice your opinion for others to hear. We welcome your opinions, your views and your participation.

The Future of the Space Cadre

The need for a trained and ready Space force has become more and more obvious ever since the success of Operation Desert Shield/Desert Storm. In a war where, for the first time ever, a battle was named for a GPS coordinate, the battle of 39 Easting, Space support to the warfighter began to mushroom in a number of ways.

Today's forces rely on Space-based information in so many ways that it is commonly recognized that Space is critical to Army mission success. This leads to the proposition that the future requires a growing cadre of Space experts who can step up and lead Space warriors and support the warfighter in any fight. As a result, the Army just concluded a Force Management Analysis (FORMAL) study to gauge its efforts in developing and maintaining a Space cadre.

Based upon the findings and recommendations of the January 2001 Space Commission Report, the Secretary of Defense issued a memorandum in October 2001 directing the Service Secretaries to develop and maintain a cadre of Space-qualified professionals comprised of military and civilian personnel in sufficient quantities to represent their Military Department's and Department of Defense agency's interests in Space requirements, acquisition and operations. Each service was directed to generate a sufficient number of appropriately qualified personnel to man joint Space organizations as well as function as Space experts within service organizations. He also directed that each service retain the ability to develop, plan, program and acquire Space systems uniquely required by individual Service missions.

Based upon the Secretary of Defense's guidance, Headquarters Department of the Army G-3/5/7 directed that U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command take the lead in conducting the Army Space cadre FORMAL which was initiated in June 2004. The FORMAL process was designated by HQDA G3/5/7 as the best way to accomplish this comprehensive analysis as it enabled Army-wide horizontal integration across diverse mission areas that encompassed multiple stakeholders. The FORMAL further served to assess the organization and management of Space activities in support of the Army, DoD and the joint community.

The FORMAL results and decisions were finalized at the Phase IV General Officer Steering Committee (GOSC) and culminated with an information briefing to the Vice Chief of Staff of the Army, Jan. 3, 2006 which approved and established the way ahead for developing and maintaining the Army Space Cadre through forming mechanisms for the Army to track, train, assess and report on the health of the Army's Space expertise in support of future force requirements. SMDC/ARSTRAT is moving forward with standing up an Army Space Cadre Office which will serve as the single organizational focal point for the Army Space cadre and is currently developing a strategy and plan to implement the decisions of the FORMAL.

The Army Space Cadre construct consists of two categories — Space Professionals and Space Enablers. The Space Professionals consist of military and civilian career Space specialists, whose principal duties include planning, developing, resourcing, acquiring, integrating or operating Space forces, concepts, applications, or capabilities in accordance with DoD Directive 3100.1 and Joint Publication 3-14. The Space Enablers are military and civilian personnel assigned to positions whose primary career field is not Space, but perform unique tasks, or functions, or may require skills to apply Space capabilities. Supplemental Space training is directly related to the duty positions of assignment.

The conclusion of the study solidifies the Army's commitment to establishing a multifunctional cadre of Army Space Professionals and Space Enablers who possess the depth and breadth of training, education and experience required to advance the use of Space capabilities. Space Cadre Soldiers and civilians are continuing a proud heritage of support and innovation to the fighting forces of the nation.

In a future edition of the Army Space Journal, we will explore the Army Space Cadre FORMAL in detail.

UFL KOREA 2005

ULCHI FOCUS LENS

In the recently held Exercise Ulchi Focus Lens 2005, Space played a visible and vibrant role in support of Army, Marine and coalition forces. This exercise was the proving ground for the Space Contingency Operations (CONOPS) devised by U.S. Army Space and Missile Defense Command/ U.S. Army Forces Strategic Command. In order to understand the importance and impact Space was having on the exercise, Army Space Journal Editor-in-chief, Mike Howard deployed to the peninsula with the troops to get the full story.

During Exercise Ulchi Focus Lens 2005, elements of the 1st Space Brigade deployed to Korea to support operations. COL Kurt Story, commander, 1st Space Brigade, explained what the objective of the exercise was for his Soldiers.

"This is the first time we have deployed a brigade size element into a theater to try to validate the theater Space support CONOPS. In the past we sent out individual ARSS Teams. We OPCON'd them to a ground element and then we basically would provide them with some reachback. But we weren't involved in their day to day activities. As a result of that, we didn't have the ability to cross organize or to cross level our work load to ensure we were maximizing our input into the theater," Story said.

"On this exercise we put 108 people on the peninsula. Twenty-five of those out of JTAGS were permanently stationed here but we brought in 83 at one time onto the theater. That is a huge accomplishment. We got six Army Space Support Teams on theater. We got the brigade headquarters and the two battalion headquarters. Not only are we supporting Army elements but we are also supporting Marines, the Combined Unconventional Warfare Task Force and other elements throughout the peninsula."

Story's guidance to the ARSS Teams was to go out and find out what the problems were, find out what effects the warfighter needed, and then tell them how the team could support their needs. This communication with the supported units was very important because, "in some cases the warfighter does not know what he does not know," Story said. "By that I mean we may have a technology or a capability that they are not familiar with. By understanding their problems, by being involved in their planning process we can basically advise them on those capabilities and bring them to bear in a manner that supports them in their warfight."

The following is an article describing how Army Space forces will be managed in the future to support the ground component commander in any exercise or real world operation. It contains the structure that allowed the 1st Space Brigade to be successful during Ulchi Focus Lens.

Enhancing Joint Command and Control of Army Space Forces

How Army Space assets will support the Ground Component Commander

BG Jeffrey C. Horne, COL Kurt S. Story and LTC Troy McKeown

Managing and allocating U.S. Space assets is a dynamic and fluid discipline that demands interaction with all branches of the Armed services and a myriad of "three-letter" national agencies within the intelligence community and others. As the 1st Space Brigade (Provisional) approached its MTOE fielding date of Oct. 16, 2005, it was working to develop doctrine, tactics, techniques and procedures (TTPs), and command and control relationships for today's Space operations across the spectrum of conflicts within the joint realm.

Space Coordinating Authority

During combat operations, the Space authority, as defined in Joint Publication 3-14, Joint Doctrine for Space Operations, and commonly referred to as the Space Coordinating Authority (SCA), will coordinate Space operations, integrate Space capabilities and have primary responsibility for in-theater joint Space operations planning.

The Space authority can be retained at the Joint Task Force (JTF) headquarters or delegated to a component command. In this position, the Space authority designated by the Joint Force Commander (JFC) will coordinate Space support of theater objectives and act on behalf of the combatant commander with primary responsibility in theater for joint Space operations planning.[1]

A number of factors are essential in designating the SCA component. The first and foremost is the preponderance of Space forces in theater. Defining "Space forces in theater" is an interesting, multi-faceted discussion. Should satellites that service joint force commanders globally be considered a theater asset? Is a satellite focused exclusively on a particular mission area for all theaters a theater Space asset? Who "owns" the support structure that flies, manages payloads and maintains the satellite part of the Space infrastructure? It could be argued that these three functions belong to strategic Space forces. It is a stretch to include them in the theater Space forces for one major reason: mission planning and execution for these assets are not done in the theater and they are globally focused multi-mission assets.

Another factor that should be considered when designating SCA is the type and scope of operations. To date, the SCA

LTC Lee Gizzi
Commander, 1st Space Battalion

"By putting Space support teams, for example, at III Corps in their combined fire effects cell, we can do more than just produce images and bring Space information. We can now integrate into the planning process and look at how we can help the ground component forces achieve their desired effects by applying Space as a weapon in that fight. We didn't do that before. Space support teams were out there doing what they did and they did great work, but now we're going to take it to the next level."

"The exercise Ulchi Focus Lens is named for a Korean General Ulchi, who very early in Korea's history — about 1400 years ago — lured a Chinese Army of about 300,000 into a trap and virtually annihilated it. Only about 4,000 Soldiers escaped the ambush. He could only have done that with superior intelligence that he worked very well with. Space allows the Commander (of today) to have superior intelligence. And so, hopefully, like General Ulchi, if it comes to war, we will annihilate the enemy quickly."

– BG Byrne, G-2, 8th Army

MAJ Richard Zellman
Commander, 2nd Space Company

"It's really a fluid process at this point. I think we're evolving in how we understand where Space assets are important on the battlefield. The concept has worked well and there are growing pains as with any organization, trying to figure out the lines of communication and who gets to talk to whom and so on. I think we're working those issues out, I think the concept is valuable ... it really allows us to fuse the whole picture of what's going on in the complete theater battle."

has always been granted to the air component commander. Yet, the priority of effort for many of these operations has been the ground component with the air component playing a supporting role. The joint community should investigate moving the SCA to reside with the ground component during these operations rather than placing it with the air component.

Joint Functional Component Command for Space and Global Strike

The SCA's link to many Space assets is through the newly formed Joint Functional Component Command for Space and Global Strike (JFCC-SGS), the Joint Space Operations Center (JSpOC), and the Joint Commander-Space Operating Forces. The JFCC-SGS is U.S. Strategic Command's (USSTRATCOM) mechanism for planning, executing and synchronizing Space capabilities.

While the SCA may facilitate non-traditional uses of Space assets, the JFCC-SGS should utilize the established processes for planning traditional Space force enhancement missions — intelligence, surveillance and reconnaissance; integrated tactical warning and attack assessment; environmental monitoring, communications, and navigation and timing.[2]

Normally the JFCC-SGS supports a combatant commander's component commander who retains the SCA role. It is comprised of staff personnel with expertise in Space control, Space force enhancement, Space force application, and Space support with augmentees from the other services and Department of Defense organizations. Through the JSpOC, the JFCC-SGS is able to do the following. It gains and maintains Space superiority through centralized command and decentralized execution of joint Space operations when assigned to support global or theater JFC

It conducts Space combat planning and directs Space combat operations across the spectrum of conflict by planning, synchronizing, tasking, integrating and assessing execution of assigned and attached worldwide Space forces (including USSTRATCOM's Unified Command Plan Space missions).

The JFCC-SGS applies Space functional concepts — coordinate and provide full spectrum of Space effects/capabilities to supported commanders (when designated a supporting commander by appropriate authority) through the operational or administrative chain of command. It Provides operational estimates, courses of action, intelligence summaries and weather support. It produces, distributes and executes Space tasking orders to produce Space combat effects in worldwide operations, and it operates and sustains Space Air Operations Center as the primary command and control node of Space forces

As USSTRATCOM's mechanism for strategic planning, executing and synchronizing Space capabilities, JFCC-SGS has further delegated the execution authority and responsibility to its Space component and the joint Space officer who executes through the JSpOC.

As this relationship with the JSpOC matures, so will the

LT Kent Myer, USN
Commander, JTAGS C Detachment

"We are a 24/7 operation that provides theater ballistic missile warning to the Pacific theater for our primary concern. This a big challenge here for us with UFL. We want to enhance our participation next year and fully integrate and play for the entire exercise. This is a good challenge for us because we get to operate and improve our participation with all the ground fighters and air crews here that are operating and also increase our participation in the Space warfare arena so we can provide better coverage and better tools for all the troops out there."

Space support SMDC/ARSTRAT provides to the theater land component commander. Space situational awareness will continue to improve. This relationship will increase our capabilities to maintain knowledge of all Space systems, not just Army systems. It will provide us access to more analysts performing Space-based intelligence estimates thus making it easier to maintain awareness of enemy Space systems and their capabilities.

Evolving Theater Space Support Structure

The road ahead is filled with many challenges and will force Space professionals to redefine the Theater Space Support Structure. SMDC/ARSTRAT is in the process of redefining the new Army Space support structure requirement for both the theater and future capabilities. As the requirements and capabilities are defined, the command must figure out how to employ them efficiently.

The primary mission of Army Space Forces is to support the land component commander in support of the joint force commander's campaign plan. Recent experience in Ulchi Focus Lens (UFL), demonstrates our need to be prepared to also support coalition forces. During the September 2005, Ulchi Focus Lens Exercise the command put Space elements with the 1st and 3rd Republic of Korea armies. To meet the growing support requirements with the current Space force structure, mission analysis becomes ever more critical. The command is also developing smaller, but tailored teams to provide Space support to the warfighter.

Proposed 1st Space Brigade Support

Real world experiences and exercise support have enabled us to refocus our theater warfighting concept, brigade task organization and subordinate unit mission statements. As the brigade redefines its TTPs and concepts, it is developing a template to craft a Space support plan for each theater. Because the threats and concept plans for the major theaters are different, support for each must be customized prior to executing an operation or an exercise.

Recent experiences in exercises UFL, Sharp Focus, and Terminal Fury, and deployments to Iraq and Afghanistan in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) have provided several lessons. First, the use of non-doctrinal terms to identify the elements that deploy forward causes confusion among the war-fighting community. Second, while every mission is different, we now better understand the joint force commander's information requirements and task organization to best support ground force commanders.

The brigade will deploy their Tactical Operations Center (TOC) to the Joint Task Force (JTF) commander and deploy its TAC to the component that retains SCA. The battalion element or TOC will locate with the ground component commander. The battalion will then pick up the requirement to attach an air coordination team to the brigade TAC in order to support the brigade's role in information operations.

Proposed changes in the structure will improve the support to the ground component commander by refocusing efforts on the battlefield. Placing the brigade TOC at the JTF headquarters will allow the brigade commander to influence and direct the priorities of Army Space support. For example, this gives him the ability to coordinate for cross-leveling or changing the priority of support

COL Eric Walters, USMC

3rd Marine Expeditionary Force

"The 193rd Space battalion, this is the first time they've come out to help us with an exercise, provide a lot of very specific and tailored intelligence support that we don't normally possess. So they come here and provide services in regard to Space weather, they give us additional topographic capability and they also help us with understanding Space effects on navigation and targeting instruments — basically that use geo-positioning data.

For example, when we build our air schedule that decides how many aircraft we need to attack various targets and what kind of ordnance to use, we use a lot of precision munitions that require geo-location data — very precise geo-location date. There are some Space effects that sometimes can affect that data, so the Space battalion gives us information that helps us make sure we use the right weapon at the right time and the right place."

across different components within the task force. By placing a battalion TOC at the ground component command headquarters, we will improve the structure to allow better integration into the ground component commander's battle rhythm to ensure that we are capturing the Space requirements. This will allow Space requirements to be fully integrated into the initial planning phases.

Evolving Capabilities

Emerging capabilities offer opportunity for Army Space Forces to harness existing strategically oriented Space capabilities with critical Space-based force enhancement capabilities and bring those capabilities to the tactical arena in the areas of intelligence, surveillance and reconnaissance, communications and positioning/navigation. Future capabilities will also allow the Army to apply Space power from tactically oriented Space platforms to perform Space control, apply Near Space toolsets, improve persistent intelligence, surveillance and reconnaissance, communications and enhance Space and situational awareness.

The near-space arena offers exciting tactical possibilities in the future for all Army Space Forces. Near-Space platforms, such as High Altitude Airships, provide a persistent loitering that increases the Army Space warrior's capabilities in three areas. Certain payloads could provide a persistent intelligence, surveillance and reconnaissance source. This would increase the maneuver commander's ability to plan and destroy enemy forces, while reducing friendly casualties. Geospatial data will be readily more available to aid in building maps and various other topographic products. Lastly, the platform could provide a long range communications platform that could alter the way the Army looks at re-transmission and greatly extend the range of conventional radios.

Conclusion

In preparation of future changes the Army is constantly reevaluating how it supports the warfighter to incorporate changes to the evolving joint construct, while preparing to deliver new capabilities to the battlefield. The resulting infrastructure integrates personnel with complete Space expertise at all echelons of the chain of command. The overarching objective is to get the benefits of Space effects down to tactical level units in order to give our Soldiers an overwhelming force multiplier on an ever-changing battlefield.

BG Jeffrey C. Horne spent five years with U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command, first as the TRADOC System Manager where he was instrumental in the emplacement of a National Missile Defense system. Following this assignment, he was selected to be deputy commanding general for operations. Horne is currently serving in Iraq as the Joint Fires and Effects Chief, Multi-National Corps – Iraq.

COL Kurt S. Story has been the commander, 1st Space Brigade since August 12, 2004. He commands a brigade of three one-of-a-kind battalions that are spread around the globe, from Colorado Springs to Europe and Asia and Southwest Asia. These units are charged with providing day-to-day Space support to the operational Army. Prior to his current assignment, he was the Chief, G-3 Operations with SMDC/ARSTRAT.

LTC Troy D. McKeown is the executive officer of the 1st Space Brigade and served as the brigade S-3 from 2004 to 2005. He a native of Cheyenne, Wyo., and a graduate of the University of Wyoming.

Warfighter Testimonials

MAJ Rich Lewis
FA40, 8th Army

"We've essentially doubled the size of Army Space support to UFL this year. We've essentially added four more locations that we are providing Space support to this year over what we provided last year."

CPT Charles Alonzo, USAF
Combined Unconventional Warfare Task Force

"For planning purposes, with their geo-spatial products, we were able to provide an overall target intelligence package to the Army Special Operations force component or sub-unit. We were able to give them a comprehensive analysis of a certain region so they could go in there, conduct their operations and understand what the terrain was like. If they were doing a water infiltration they provided a hydrology study to understand what it was going to be like, (things like) tides, ebbs, flows, etcetera. Overall they provided not only intelligence support but also operations support for the mission planning as well as the execution."

LTC Greg Schultz
III Corps

"The Space operations guys bring yet another capability to the corps commander. They help him to better see the environment he is operating in, assess the affects we are trying to get, and in many cases assist in accomplishing those effects."

MAJ Robert Guerriero
FA40, III Corps

"I think Space support to operations is going through an evolution now. Traditionally we have done things like track GPS accuracy, track satellite status, constellation status, Space weather and Space environment in general. We still do those sorts of things, but we are heading more and more toward supporting full spectrum operations where we look at the enemy and the enemy's vulnerabilities from a Space perspective. We look at effects that we can deliver, effects that we can achieve from Space and then we look at how we can assess those effects from Space. That is where Space support is heading."

THE SOLDIER'S PERSPECTIVE

SGT Francena Scott
Geospatial NCO, ARSST #4

"Here on an ARSS team I don't really do as much geospatial work as I would on a TOPO team. Here I get the imagery faster. If you wanted some imagery to do a battle assessment I can give it to you almost immediately. If something happened early in the day I can go in and get it and give it to you that same day where the TOPO team is going to take maybe a week."

MAJ Jesse Morehouse
193rd Space Battalion

"I think one important thing our team understands is that we're not an asset that goes out and actually pulls triggers. What we do is … people plan those missions. We help them make their plans more accurate and better by our presence and by the support we provide with our access to Space-based capabilities."

MAJ Richard Zellman
1st Space Company

"We have a legacy task ... the Space force enhancement task. We can do imagery, we can do 3-D fly-throughs, we can do maps ... we can do Space weather, we can do navigation and accuracy predicts, but I think where we're really important is where we can actually bring an effect to the enemy. All those things I just previously mentioned are items that help make us more efficient. They're not things that directly affect the enemy, but if I can find a way to impact the enemy's communications systems, if I tell the targeting Soldiers in our synchronization cell that hey this is a downlink site for all their critical satellite communications and we hit it with a Joint Direct Attack Munition, well then they can't talk anymore. That's an example of a Space Soldier impacting and actually putting an effect on the enemy."

Gunnery SGT
Michael Lambuth
III Marine Expeditionary Force

"It's good to have that back up there. And some of the stuff they got is really high speed. And I can see a lot of this stuff getting real good use."

SSG Hugo Lara
193rd Space Battalion

"My job was a forward observer. I was an NCOIC for a Stryker Team. When I am developing a product I tell myself what if it is me in there? What if I'm going in there with my team? That is a big role."

MAJ Gary Prater
HHC, 1st Space Battalion

"It's important for us to get out here and show the divisions and corps, and the Republic of Korea for that matter, what our capabilities are and what we bring to the fight. You know, we're doing a lot of effects-based stuff, how we can affect the battle. It's important for us to get out there and show what we can do so that they know what we can do. Hopefully, over all, we'll be able to shorten the battle because of what we bring to the fight. Save lives and move on."

SGT Nicholas Neilson
JTAGS C Det
1st Space Battalion

"It is a very critical mission what we do. We provide every body with warning. It starts with us and works all the way down. It is very important because there is no room for failure with this job. Everything you do is real world mission. So everything you do, everyone is relying on you."

Enabling Space warriors for the 21st century

EIGHT new capabilities for FA40s

By MAJ Robert Guerriero

Space support to tactical operations is in its infancy. We are just beginning to develop the techniques and procedures to effectively leverage our Space-based capabilities in support of the Army and the joint warfighter. As new Space-based and ground-based capabilities are developed and fielded, FA40s will have unprecedented ability to use Space to impact operations.

Our current constellations of military and intelligence collection satellites are impressive national achievements that have given the United States clear Space superiority. The Space architecture that has evolved was largely designed to support strategic objectives. This includes not only the satellites themselves and the associated sensors, but our ground stations, processing and exploitation infrastructure and dissemination systems. From the tactical perspective, Space support to the warfighter has meant adapting these strategic systems to solve tactical problems. One notable exception to this is the global positioning system (GPS) constellation. This constellation was designed from the outset with the tactical user in mind, and the result has been a revolution in warfare.

Despite the challenges to developing and fielding capabilities, the Army Space community has had some success in leveraging strategic systems and has made some substantial contributions. With new systems and capabilities designed specifically to support the tactical user and fielded to FA40s and Space Support Elements (SSEs) to deliver directly to the warfighter, the impact of Army Space on operations will grow substantially.

This article describes eight new capabilities that should be considered for fielding to SSEs and Space operations officers in tactical assignments. Some of these capabilities are already developed and in use, and simply need to be fielded to our Space cadre. Others will require development and testing before they will be fully operational. Some readers may dismiss some of these potential capabilities as not practical, too difficult to achieve or not appropriate for FA40s to control. Whatever the initial impressions, we need vigorous discussion on these and other new capabilities to keep Army Space relevant and valuable now and into the future.

Laser Dazzler — Mounted and Fixed

Force protection is consistently one of the top priorities of commanders in combat zones. One legitimate concern is an enemy's use of national or commercial imagery to identify concentrations of U.S. forces on the ground. This is especially true in places like Iraq, where U.S. forces have large numbers of troops based in static forward operating bases (FOBs). With minimal effort, an enemy could acquire satellite imagery of one of these FOBs to use for targeting purposes. The proliferation of commercial high-resolution imaging satellites will make imagery even easier to acquire in the future. Current mitigation strategies for this problem rely on "shutter control" that is applied by either purchasing all imagery time over a certain region or securing agreements not to image specific regions. Shutter control can be effective for short periods of time, but is not effective for longer duration conflicts like Operation Iraqi Freedom. Shutter control is also not timely enough to be put into place to prevent imagery of a crisis area.

One option to defeat overhead imagery is with laser dazzlers. Unlike laser blinders designed to damage optics, laser dazzlers can be adapted to simply wash out a portion of the image frame. A narrow-focus beam is not required for this application since the light must be dispersed over

Part of the Advanced Concept Technology Demonstration, the Tactical High Energy Laser (THEL) at the High Energy Laser Systems Test Facility (HELSTF) has successfully demonstrated the Army's ability to intercept rockets and artillery pieces. On June 6, 2000, the THEL intercepted its first Katyusha rocket. Since then, testing in November 2002 has illustrated the THEL's increased abilities with intercepts of smaller and faster moving artillery pieces.

multiple pixels to be effective. In this case, atmospheric dispersion can be overcome to achieve the desired effect. Several lasers covering multiple wavelengths may need to be employed to disrupt an image taken in multiple frequency bands. A low-power dazzler could be left on permanently and mounted on rooftops or towers within FOBs to prevent imagery of U.S. forces. If a U.S. satellite needed to take an image in the vicinity of an FOB, the FA40 in the region would be the point of contact to shut the dazzlers down long enough to take an image. Another technique would be to have the dazzlers scheduled to turn on only during enemy satellite fly-overs. This technique is no more disruptive to a satellite than camouflage netting.

Another application of this capability could be as an attachment to a vehicle to prevent accurate assessments of the size and vehicle types of moving formations. This deception technique would use vehicle-mounted laser dazzlers to give the impression of a large formation that is being protected from observation.

Radar Receiver

Foreign nations are increasingly turning toward synthetic aperture radar (SAR) to provide a day/night, all-weather imaging capability. Commercial satellite imagery providers have also made SAR imagery available through Canada's RADARSAT1. An improved commercial SAR imager, RADARSAT2, is scheduled to launch in 2006 and will provide 3-meter resolution radar imagery.

SAR imagers emit a characteristic waveform when imaging that can be easily detected on the ground with the appropriate sensor. A capability that should be developed for employment by FA40s and SSEs is a small, mobile receiver that can detect these waveforms and determine if an overhead SAR imager is taking an image of the receiver's location. Combining a detection function with satellite fly-over data would allow Space operators to quickly determine which satellite took the image. A query to a commercial imagery provider could also lead to the identification of the purchaser. This capability would allow an FA40 to alert the commander to the fact that the unit or area has been imaged with radar and to identify the source of the image. This receiver could also be effective in detecting airborne SAR imagers being employed against U.S. forces.

The ability to know where an enemy's intelligence, surveillance and reconnaissance (ISR) efforts are being focused gives the U.S. commander a great advantage in understanding and disrupting the enemy's decision-making process. SAR receivers could be employed with mobile forces or emplaced on static bases. Use with mobile forces would allow a commander to assess the operational security implications to the mission from a possible compromise of a maneuver element. Use on static bases would be a significant force protection advantage and alert the commander when a base may have been imaged for targeting.

Secondary Payload Sensor Packages

The Army Space community should develop a series of payloads specifically designed to support Army users. These payloads should be designed to fly as secondary payloads on other national and military satellites. Taking advantage of an existing satellite bus and cost-sharing launch costs will dramatically reduce both the time and cost of getting new Space capabilities on orbit. One example of a potential secondary payload is an overhead non-imaging infrared (ONIR) sensor with see-to-ground capability. ONIR sensors in general have proven to be very effective and useful in tactical operations. Other examples include specialized communications equipment, non-imaging spectrometers, narrowband signal intelligence (SIGINT) collectors and low-light optical sensors. Data from these sensors, after processing at the appropriate ground stations, could be fed to ground commanders through their assigned FA40s. The FA40 serves as the focal point to task these sensors for collection and then to integrate and fuse the data from these tactical sensors.

Populating the Space environment with multiple sensors designed to support tactical users will give us a true battlespace characterization capability from Space.

Secure Blue Force Tracking over Communication Architectures

One of the largest shortcomings of the Force XXI Battle Command Brigade and Below (FBCB2) system — the Army's primary means of Blue Force Tracking (BFT) — is that the data travels over commercial communication satellites that are not secure. Not only are these signals easily intercepted or jammed but they are subject to all of the same interruptions that are found with other satellite communications. Commanders have come to rely on their BFT data and expect it to be updated and accurate when needed. Even a brief compromise of BFT data at a critical moment can have enormous impact. There are some secure BFT systems available, although these systems require a satellite architecture that must be specifically tasked to detect the devices.

The Army Space community should develop a small, secure BFT device that leverages existing military communication architectures. A BFT device that uses a low probability of intercept waveform with a high-frequency transmitter and an encryption capability will eliminate the security vulnerability that exists in current FBCB2 systems. If these devices transmit over military communication satellites, we can reduce our reliance on commercial communication systems and still avoid being forced to task satellites to collect BFT signals.

SSEs and FA40s in tactical units should be equipped with a large basic load of these BFT devices. They could then be employed by selected units or on high-priority assets during critical operations. These systems would not replace existing FBCB2 systems, but would augment them with a secure BFT capability. If these devices are made small enough, they can also be emplaced in a clandestine manner and used for enemy tagging and tracking.

GPS Augmentation

The launch of the GPS constellation initiated a revolution in warfare. Every branch of the U.S. military has come to rely on GPS to execute its various missions. Precision maneuver and precision strike have become virtual requirements in modern-day warfare.

FA40s have long been able to predict the accuracy of GPSs at any desired location. This capability is limited to providing information since there is little in the FA40's power that can be done to correct unacceptable GPS inaccuracies. However, GPS augmentation techniques are available to improve the accuracy of GPS position information, often by a factor of 10 or more.

The two primary augmentation methods are differential GPS and ground transmitters referred to as "pseudolites." Differential GPS uses a beacon that transmits corrected GPS information from a precisely surveyed point on the ground. A GPS receiver must be capable of receiving this additional differential signal to make use of correction data, but many GPS receivers produced today already have this capability. Pseudolites are either mobile or fixed transmitters that act as additional satellite signals. This method is particularly useful where GPS signals are blocked or obscured, such as in urban environments or deep valleys.

FA40s should be trained to advise commanders on the use and emplacement of differential GPS beacons. They should also be able to coordinate, through reachback, the emplacement of a differential beacon. Furthermore, SSEs should have several GPS pseudolite transmitters that can be employed at critical times and places on the battlefield. In this way, an FA40 can not only predict when GPS accuracy will be poor but can also deliver a solution.

GPS Jammers

It seems counter-intuitive to suggest that U.S. military personnel should employ GPS jammers. However, one of the great strengths of GPS is also one of its greatest liabilities from a military or security standpoint: it is available to anyone with a receiver. It is well known that our adversaries take advantage of the precision navigation capability that we provide and use it to make their own military operations more lethal and effective. The global reliance on GPS makes it impractical to degrade the entire constellation.

GPS jammers can be small enough to be hand-held. A relatively low-power output of only a few watts is enough to jam receivers within a very large area. FA40s with these selective GPS jammers would give commanders a powerful tool to negate a high-tech capability that our adversaries are learning to rely on, while keeping the same capability available to friendly forces. An alternative approach involves using GPS "spoofers" instead of jammers. Spoofers emit false signals instead of interfering in a random way. The advantage that spoofers offer is that an enemy might not know that any interference is occurring and would unknowingly be working with inaccurate GPS data.

7) Optical Augmentation Scanners

Optical augmentation is a technique that can be used to detect optical surfaces oriented toward the scanner. This is accomplished by using a low-power laser to rapidly scan a large area coupled with a sensitive detector to identify any bright reflections. Optical surfaces, such as lenses and mirrors, reflect much more light than their surrounding areas when they are pointed

"It is imperative that as warfare and the Army change, Army Space operations also change in order to make valuable contributions. ... Only by aggressively pursuing new tools and new capabilities will Army Space operations keep pace with the dynamic environment of modern military operations."

toward the detector. This bright reflection indicates an observer orienting their optics toward the scanner. Generally, an out-of-band laser is used for optical augmentation to prevent damage to optical equipment and to reduce the visible signature of the optical scanning.

Optical augmentation could be employed by FA40s and SSEs to detect imaging satellites oriented toward a particular point on the ground. The employment and utility of optical augmentation scanners are similar to that for radar receivers, but provides warning for electro-optical satellites. There are some drawbacks to this technique, however, that should be understood. First, an optical augmentation scanner will only indicate when a satellite is pointed at the scanner, not whether or not an image was actually taken. Second, the scanner must be positioned within the narrow footprint of the imager in order to detect it. Finally, this equipment would give FA40s the ability to identify the positions of national intelligence satellites. A process must be developed to mitigate this risk before optical augmentation scanners could be employed.

8) Mobile Very Small Aperture Terminal (VSAT) Studio

The U.S. Army psychological operations (PSYOP) community has the capability to develop, produce, and disseminate PSYOP messages to indigenous populations. Its primary means are printed handbills and radio broadcasts. One area where the PSYOP community struggles is in the ability to broadcast its messages through television. In the age of satellite TV, and with the proliferation of VSAT TV receivers, the PSYOP community has a critical capability gap. Although the Special Operations Media System-B has television capability, it is a direct broadcast system with a limited range, not a satellite system. The common method to get long-range or large-scale broadcasts is through local contracting with broadcast studios. This is time-consuming to establish, expensive to maintain and can be extremely challenging in a hostile environment.

The Army Space community could close this capability gap by fielding mobile VSAT studios to SSEs. The required equipment consists of a laptop computer with a DVD writer, a digital video camera and a VSAT transmitter. Coupled with leased channels on several broadcast satellites, FA40s and SSEs would then have a capability for rapid dissemination of PSYOP products anywhere in the world. Public affairs sections already have a similar capability to facilitate press statements and the release of news stories, but there is a strict division of labor between PSYOPs and public affairs that does not allow them to share equipment.

This capability does not have to be limited to PSYOP, but could also support the overall information operations campaign through uses such as facilitating a commander's ability to rapidly disseminate information or addressing foreign target audiences. Fielding mobile VSAT studios to our tactical Space forces could represent a great collaboration between the Space operations and information operations communities.

The capabilities described above are only a sample of the possibilities for Space operations as we continue to adapt to the increasingly complex nature of modern warfare. It is imperative that as warfare and the Army change, Army Space operations also change in order to continue to make valuable contributions. FA40s and SSEs must evolve to the point where they deliver unique, tangible and valuable capabilities to unit commanders. The capabilities discussed above can achieve this. Whether or not these particular suggestions are viable remains to be seen, but we must continuously look for new ways to support operations from Space. Only by aggressively pursuing new tools and new capabilities will Army Space operations keep pace in the dynamic environment of modern military operations.

MAJ Robert Guerriero is the III Corps Space Operations Officer at Fort Hood, Texas. He was previously assigned to the National Reconnaissance Office's Advanced Systems and Technology Directorate. Guerriero is a graduate of the Space Operations Officer Qualification Course. Comments and feedback are welcome. Please send to: robert.guerriero@us.army.mil or robert.guerriero@hood.army.smil.mil

SMDC/ARSTRAT Gets New DCO

By Sharon L. Hartman

PETERSON AIR FORCE BASE, Colo. — Without the customary flare of the passing of a flag, a new era began within U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command, as the torch of the operational arm of the command was placed in the hands of COL Roger F. Mathews during a ceremony on Jan. 4. Mathews comes to SMDC/ARSTRAT from Fort Bliss, Texas, where he served as the assistant commandant, deputy commander for the U.S. Army Air Defense Artillery Center and Fort Bliss, Texas.

LTG Larry J. Dodgen, Commanding General, SMDC/ARSTRAT, hosted the ceremony that welcomed Mathews to the command and bade farewell to Mathews predecessor, BG Jeffrey C. Horne, who's next assignment is as the Joint Fires and Effects Chief, Multi-National Corps — Iraq. During his remarks, Dodgen commended Mathews on his past accomplishments and encouraged him in his future role within the command.

"I challenge you and I charge you with the responsibility of maintaining the operational side of this command and the welfare of Soldiers, their families and civilians, and the operational missions from STRATCOM and from the United States Army. So even though we have not passed a piece of a flag, you are hereby officially charged with those responsibilities," said Dodgen.

Upon accepting his new responsibility as the deputy commander for operations, Mathews remarked on his previous dealings with SMDC/ARSTRAT and his excitement in joining the command.

"General Dodgen, I thank you for the trust and confidence for allowing me to serve in this dynamic and important organization … it's an outstanding organization that is bringing cutting edge Space technology to warfighters to enable them to decisively win our nations wars. I had a chance to witness SMDC's contributions first hand during Operation Iraqi Freedom. While there deployed in Israel with the 69th ADA brigade, the best Army Air Defense brigade, SMDC Soldiers provided first class support. They did a fantastic job of using Space operations, Space-based capabilities and missile warning to help us and other coalition forces succeed in battle. It's great to be joining a command that makes such a difference," said Mathews.

Dodgen also spoke of the many successes achieved under Horne's leadership as deputy commanding general for operations.

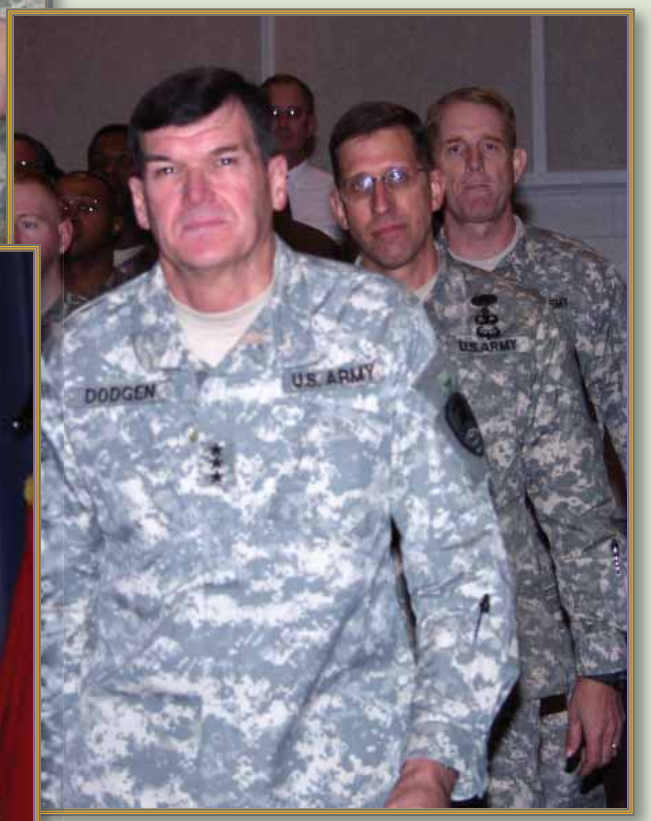
"From ensuring Space-based capabilities are embedded at critical levels in support of joint warfighters, to laying the foundation for the future of the Army Space cadre, to establishing a credible capability for the defense of our homeland, deployed forces, friends and allies from a ballistic missile attack, to integration with U.S. Strategic Command planning efforts, you can be extremely proud of what your team has accomplished during your tour here in Colorado Springs," said Dodgen.

In his farewell remarks to the members of SMDC/ARSTRAT, Horne gave his thoughts on Iraq and his vision of the U.S. role in the war as he prepares for his next assignment there.

"We're bringing freedom to a people that have not experienced it in a very, very long time," Horne said. "We're working to give every citizen there an opportunity to raise their children in a safe environment, to be able to play in their front yards without fear of gunfire, … to be free to practice (his or her) faith, … to be free to build their country. These are simple goals and goals we founded our country on."

As deputy commanding general for operations, Horne played a key role in the positioning of the first ground-based midcourse defense brigade, the creation of the Joint Functional Component Command for Integrated Missile Defense, the integration of the former SMD Battle Lab and the Force Development and Integration Center into the SMDC Futures Warfare Center, the expansion of the Space cadre and the placing of trained Space Soldiers into divisions

Sharon L. Hartman is a Department of Defense Contractor with COLSA Corporation, and has served the U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command Public Affairs Office at Peterson Air Force Base, Colo., for six years. She is the senior editor and technical director for the **Army Space Journal** and is the managing editor of SMDC/ARSTRAT's worldwide stringer program.



Clockwise from left:

COL Roger F. Mathews, right, incoming deputy commander for operations, SMDC/ARSTRAT, makes a point as he speaks with CW3 Chris Wehmeier during a welcome reception for Mathews. *Photo by Ed White*

Front to back, LTG Larry J. Dodgen, Commanding General, U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command, BG Jeffrey C. Horne, outgoing deputy commanding general for operations, SMDC/ARSTRAT, and COL Roger F. Mathews, incoming deputy commander for operations, SMDC/ARSTRAT, arrive during the ceremony that welcomed Mathews and farewelled Horne. *Photo by Sharon L. Hartman*

BG Jeffrey C. Horne, left, outgoing deputy commanding general for operations, SMDC/ARSTRAT, presents COL Roger F. Mathews, incoming deputy commander for operations, SMDC/ARSTRAT, with a token during a Jan. 4, ceremony. *Photo by Sharon L. Hartman*

DUTY, HONOR, COUNTRY

193RD CAPTAIN IS LIKENED TO ONE OF ARMY'S GREAT GENERALS

By Sharon L. Hartman

PETERSON AIR FORCE BASE, Colo. — Duty, Honor, Country. These words were made famous by GEN Douglas MacArthur in his acceptance speech of the Thayer Award in 1962. But, the significance of what MacArthur intended with those words can only be truly understood by those who sacrifice of themselves for others. No one in the history of this country has sacrificed more than the men and women of the United States Armed Forces.

To that end, the General Douglas MacArthur Leadership Award was established in 1987, and has since been presented annually to Army company-grade officers and warrant officers who demonstrate those ideals of duty, honor and country of which MacArthur spoke. CPT Angie L. Tofflemeyer, of U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command is one of those officers.

Tofflemeyer was nominated for the award earlier this year, and in May was one of 27 Army officers who were selected to receive the award. Of the 27, seven were National Guardsmen, seven were Reservists and 13 were Active Duty.

Tofflemeyer is the commander of the SMDC/ARSTRAT, Space Support Company, 193rd Space Support Battalion, Colorado Army National Guard which is nearly identical to the 1st Space Battalion's Second Space Company.

"The only difference is the Commercial Exploitation Team (CET) in the 193rd falls under my company, where in the 1st Space Battalion it falls under the headquarters company," said Tofflemeyer.

Tofflemeyer served as the Intelligence Officer for the first National Guard Army Space Support Team that deployed overseas to Kuwait during Operation Enduring Freedom in 2001. Under her command the company has deployed three teams including the CET, which is currently deployed to Bahrain, and Tofflemeyer has traveled to South Korea three times for exercises. In addition to her role as company commander, Tofflemeyer works as a full-time contractor for SMDC/ARSTRAT.

"I'm a Space planner and STRATCOM (U.S. Strategic Command) representative for our command," said Tofflemeyer. "I interface with the STRATCOM planners giving input to their plans that they are currently working and in the future as plans come up for review and we'll eventually be doing. Depending on the plan, I will be the lead for developing the supporting plan or just the action officer for our command."

LTC Scot Cuthbertson, commander of the 193rd Space Battalion, nominated Tofflemeyer for the award saying, "Captain Tofflemeyer is a strong leader and always has been. This is a very prestigious program. There are very few captains per year that receive the

award, but she has faced many challenges being in a dual military family and she has always managed everything well and is an extremely effective leader."

Tofflemeyer's husband, CPT Troy Tofflemeyer, is currently stationed in Fort Polk, La., so Tofflemeyer is a geographical single parent to daughter Rachael, five and son Nicholas who just turned two, until her husband returns in August.

Cuthbertson first submitted Tofflemeyer's packet to the brigade level. The troop commander then reviewed the packets from the brigade and selected the ones that would go on to the state headquarters. Out of the eight National Guard Battalions in the state of Colorado, Tofflemeyer's packet was the only one to make it out of the state and to the next level.

"It meant a lot to me to be nominated and then to be accepted," said Tofflemeyer. "It's such a big compliment."

The official ceremony was held in Arlington, Va., at the Pentagon on May 25, and the recipients were presented their awards by GEN Peter J. Schoomaker, Chief of Staff of the Army.

Each recipient was presented with an 18-inch bust of GEN MacArthur and a gold watch that had their initials engraved on the back from the Association of the United States Army.

"I also received an awesome black leather backpack from the National Guard and of course we all got coins … lots of coins!" added Tofflemeyer.

During their visit, the group spent time touring various areas of the Pentagon and visiting Arlington Cemetery. Getting to tour the new chapel commemorating Sept. 11 meant a lot to Tofflemeyer.

"The chapel was not there the last time I went, so it was nice to get to see it. It is a very somber reminder of what happened there. They actually gave us each a piece of the Pentagon from 9/11."

With the ceremony done and over with, and Tofflemeyer back to work, she is still very much in awe over her experience.

"It was Memorial Day Weekend, and one of the recipients got to place a wreath at the Tomb of the Unknown Soldier. There had been so much attention for us and it was definitely overwhelming, but just walking around Arlington and seeing all the flags that had put on the graves for Memorial Day in honor of their sacrifice was so awe-inspiring and humbling," said Tofflemeyer. "Honestly, I'm just another captain out there trying to do the best I can."

Cuthbertson had his own thoughts on that, "Having been honored as sharing the moral code of one of the Army's greatest generals, I can tell you that Captain Tofflemeyer is definitely not just another captain."

Sharon L. Hartman is a Department of Defense Contractor with COLSA Corporation, and has served the U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command Public Affairs Office at Peterson Air Force Base, Colo., for six years. She is the senior editor and technical director for the **Army Space Journal** and is the managing editor of SMDC/ARSTRAT's worldwide stringer program.

Top, CPT Angie L. Tofflemeyer receives the GEN Douglas MacArthur Leadership Award from Chief of Staff of the Army, GEN Peter J. Schoomaker during a ceremony at the Pentagon on May 25. *Photo by CPT Troy Tofflemeyer*; **Center, CPT Angie Tofflemeyer gives her daughter, Rachael, a farewell kiss prior to her deployment to Afghanistan in 2001.** *Photo by MAJ Laura Kenney*; **Bottom, CPT Angie Tofflemeyer, right, works with one of her Soldiers during a drill weekend for the 193rd Space Battalion.** *Photo by MSG Class Dennis Beebe*

Tip of the Sphere

Space Soldier Vies for DA Title

By Sharon L. Hartman

SPC Matthew Funk from Echo Company, 53rd Signal Battalion, Fort Buckner, Okinawa, Japan performs a night fire qualification during the 2005 Department of the Army Non-Commissioned Officer and Soldier of the Year Competition.

FORT LEE, Va. — Flares illuminated the night sky like fireworks on the Fourth of July and tracer rounds could be seen blazing across the hills. Sounds of gunfire, mortar rounds and Soldiers shouting filled the air, giving a sense that war was all around. Yet, the only battle going on here was for the 2005 Department of the Army Noncommissioned Officer and Soldier of the Year titles.

In the hot and humid forests of Virginia, a Space Soldier from U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command was one of ten Soldiers battling for the title of DA Soldier of the Year, during a week long competition Sept. 25-30.

SPC Matthew Funk, a Satellite Network Controller serving with Echo Company, 53rd Signal Battalion (SATCON) at Fort Buckner, Okinawa, Japan arrived pumped up and ready for the competition.

"I come from a technologically based MOS, so being among some of the best ground forces the Army has to offer is definitely a great opportunity, and I'm willing to show that SMDC has what it takes to be a part of that," said Funk.

SGT David M. Knotts Jr., an Alaska National Guard Military Policeman serving with the 49th Missile Defense Battalion in Fort Greely, Alaska, also represented SMDC/ARSTRAT for the NCO of the Year title, and also arrived at the competition ready for anything.

"I really didn't have any preconceived notions of what the competition was going to be like, so as things played out, there wasn't anything that threw me off," said

Below, SPC Matthew Funk reviews data during the daytime land navigation portion of the competition.

Right: SGT David M. Knotts Jr., searches an enemy prisoner of war during one of the warrior tasks of the competition.
Photos by Sharon L. Hartman

Knotts. "In my military career, I have found that you're better off maintaining an attitude of flexibility so when you're told to do something, you adjust fire, adapt to the situation and are able to change to whatever tasks you're given at that time."

In preparing for this year's competition, senior enlisted leadership in charge of the event chose to modify the schedule with the biggest alteration being the actual board appearance. Where in the first three years of the competition, the board was saved for the last event, this year it was first.

"Having the board first is a good first impression and it gets all of the stress out of the way," said SFC Curtis Kimbrell, last year's SMDC/ARSTRAT NCO of the Year and this year's sponsor for Knotts. "With the board being first, there's no build up like there was last year, so I think I would have liked it better. The sergeants major on that board have no basis to be biased. They haven't seen anyone perform in the field, they haven't seen how anyone has reacted to getting a "go" or a "no-go." They haven't seen interaction between the competitors."

Reduced stress or not, it was still a tough event.

"This board was definitely meant to be at the top," said Funk. "Not a Soldier in there is going to get every question right. I think that's what it's designed for — to get a true judgment of each Soldier. If you have simple questions and every Soldier gets it right, you can't make a proper judgment."

Day two began before the sun was up with an Army Physical Fitness Test, followed by a written exam, an essay and day land navigation. The day's events finally came to an end well after the sun went down with the completion of nighttime land navigation that made for a long day, and night, for competitors.

"I don't think anyone is going to have any kind of an advantage whether they've done it a million times or they've only done it once," said SSG Frederick Edison, Funk's sponsor for the event. "It only matters that one time when they're at their test, so it could be a bad day for this guy who's a Ranger and a good day for someone else who does not have as much experience. Funk has to compete against himself and that's where I think the true competition is."

The following day was filled with warrior tasks including dealing with an enemy prisoner of war scenario, maneuvering through a booby trapped lane, providing first aid to a casualty, assembling an M-16 in blackout conditions and assembling a 50 caliber machine gun.

"I'm satisfied with how I performed all the tasks I was given," said Knotts. "Regardless of your MOS, your mission or the unit that you came from, this competition is a challenge for everyone, but at no time did I feel like I was competing against any of the other NCOs. It was a competition with me and I think I performed well."

The flares across the dark sky began the final day of the competition at 1:30 a.m. with an M-16 night fire followed by a pre-combat check in which the competitors were required to identify seven of 10 deficiencies using only their red-lens flashlight for illumination. Additional medical tasks followed and a grueling six-mile road march concluded the competition.

"The events were simulated so well and realistically that it sticks in your mind," said Funk. "I think that was what they were trying to do. Have training that is so real that you don't forget it."

With the events complete, the competitors traveled to Arlington to attend the Association of the United States Army Annual Conference where the winners were announced during the opening luncheon. SGT Jeremy S. Kamphuis of U.S. Army

Tip of the Sphere

Clockwise from top:

SPC Matthew Funk, center, and SGT David M. Knotts Jr., right, review instructions as they prepare for the next event of the competition.

SPC Matthew Funk, in green, races for the finish line during the run portion of the Army Physical Fitness Test for the 2005 Department of the Army Non-Commissioned Officer and Soldier of the Year Competition.

SGT David M. Knotts Jr., reviews a checklist as a Soldier provides cover during an enemy prisoner of war scenario.
Photos by Sharon L. Hartman

Left, SGT David M. Knotts Jr., treats a burn victim as part of a warrior task during the competition. Right, SPC Matthew Funk enters settings on a Precision Lightweight GPS Receiver during another warrior task of the competition. *Photos by Sharon L. Hartman*

Europe was named the 2005 Department of the Army NCO of the Year, and SGT Chad H. Steuck from U.S. Army Forces Command, who received the defining stripe a month before the competition, was named the Army's Soldier of the Year.

Although their names were not announced at the luncheon, Knotts and Funk did not leave empty handed. All 20 finalists received gifts, but the experience and the knowledge gained meant more to them than any award.

"Now when a Soldier comes to me with an issue, I have a better knowledge, a better grasp of the resources that are out there to help them," said Knotts.

"I have a better understanding of what the Army process is on how we're supposed to train. In the long run, what the Army has invested in me will benefit the Army in that I will be able to give it back by helping other Soldiers," added Knotts.

"I think as far as an accomplishment goes, something I gained from this is a greater respect for what other people in the Army are doing right now," said Funk. "It was more hands on and realistic than I ever imagined. Everyone talks about — a ruck march or a night fire range and all that stuff like — it's not anything, but when you're doing it, you know what it takes."

If things go his way, Funk may get the chance to show "what it takes" again.

"Going back next year to compete as the non-commissioned officer would be great. Having been here this year, the whole feeling of the unknown is already over with," said Funk. "I think definitely after spending all this time training I can't unlearn this so I might as well go for it."

MARK YOUR CALENDARS!

Several important events will be happening in Colorado Springs this summer. The 2006 U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command Noncommissioned Officer of the Year and Soldier of the Year competition will be conducted June 13 - 18 with the winners being announced at an awards ceremony on June 23 at the Wyndham Hotel.

Next will be the SGT Audie Murphy Club board on June 19 to determine possible inductees into the club. Points of contact for the SAMC board are SFC Donn Marcus, 703-602-3866 (DSN 332) or SGT Walker 703-607-1951 (DSN 327).

Finally, the 2006 Senior Noncommissioned Officer Conference will be conducted June 19 - 23, at the Wyndham Hotel. POC's for this conference are SGM Daniel Rutledge, 703-802-1667 or SFC Cynthia Arrington 703-602-5372 (DSN 332).

Sharon L. Hartman is a Department of Defense Contractor with COLSA Corporation, and has served the U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command Public Affairs Office at Peterson Air Force Base, Colo., for six years. She is the senior editor and technical director for the **Army Space Journal** and is the managing editor of SMDC/ARSTRAT's worldwide stringer program.

Tip of the Sphere

Space Soldiers leading from the front

SMDC/ARSTRAT inducts Space Soldiers into SGT Audie Murphy Club

By MSG Dennis Beebe

Six members of U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command, to include four Space Soldiers, were inducted into the SGT Audie Murphy Club during a ceremony on Peterson Air Force Base, Colo., on June 24. SMDC/ARSTRAT deputy commander for operations, COL Jeffrey C. Horne, and SMDC/ARSTRAT's CSM David L. Lady participated in the ceremony. Pictured from left to right, SSG Brandon Deaton, 2nd Space Company, 1st Space Battalion; SGT David M. Knotts Jr., 49th Missile Defense Battalion, 100th Missile Defense Brigade (Ground-based Midcourse Defense); SGT Francena M. Scott, 2nd Space Company, 1st Space Battalion; COL Jeffrey C. Horne; CSM David L. Lady; SSG Gaylon R. Hensley, Charlie Detachment, 2nd Section, 1st Space Company; SSG Sonya R. Smith, Alpha Company, 1st Satellite Control Battalion; SFC Curtis L. Kimbrell, 100th Missile Defense Brigade (Ground-based Midcourse Defense). *Photo by MSG Dennis Beebe*

PETERSON AIR FORCE BASE, Colo. — "You lead from the front."

Some of the most memorable words spoken by SGT Audie Leon Murphy, the most decorated Soldier in the history of the United States Army. But they were more than just words to him; they were a code he truly lived by. That is why those words are also the motto of the SGT Audie Murphy Club, an organization that was established in 1986 to recognize Noncommissioned Officers who have proven themselves to be cut from the same cloth as SGT Audie Murphy.

At a ceremony on June 24, six U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command NCOs, who had aspired to become members of this elite group of professional Soldiers, achieved their goal.

The newest inductees to the SGT Audie Murphy Club included four Space Soldiers, SSG Brandon L. Deaton, 2nd Space Company, 1st Space Battalion, 1st Space Brigade, Peterson Air Force Base, Colo.; SSG Gaylon R. Hensley, 1st Space Company, 1st Space Battalion, 1st Space Brigade, Peterson Air Force Base, Colo.; SSG Sonya R. Smith, Alpha Company, 1st Satellite Control Battalion, 1st Space Brigade, Fort Detrick, Md.; and SGT Francena M. Scott, 2nd Space Company, 1st Space Battalion, 1st Space Brigade, Peterson Air Force Base, Colo.; two missile defense Soldiers, SFC Curtis L. Kimbrell, 100th Missile Defense Brigade (Ground-based Midcourse Defense), Colorado Springs, Colo.; SGT David M. Knotts Jr., 49th Missile Defense Battalion, 100th Missile Defense Brigade (GMD), Fort Greely, Alaska, were also inducted.

"You are part of an elite circle," said then COL Jeffrey

C. Horne, Deputy Commander for Operations, SMDC/ARSTRAT during his remarks at the induction ceremony.

"You will achieve greatness. The members of this club will lead for the future. Our Sergeants Major of the Army, Command Sergeant Major (Kenneth) Preston, Command Sergeant Major (Jack) Tilley and Command Sergeant Major (Robert) Hall were all members of the Sergeant Audie Murphy Club. Our FORSCOM (U.S. Army Forces Command), TRADOC (U.S. Army Training and Doctrine Command), MEDCOM (U.S. Army Medical Command), USAEUR (U.S. Army Europe), 8th Army, and of course our own Command Sergeant Major (David) Lady are all members of this club," added Horne.

"The new inductees championed the qualities of leadership and knowledge that it took to become a member of this prestigious club," said Lady, who served as president of the board.

They proved their right to be inducted by standing in front of boards made up of senior NCOs within their units, and by then appearing in front of the most senior command sergeants major and first sergeants in the command, who asked them tough questions about the Army's history, leadership and programs making up life in the Army today. Some of the questions had definite answers and some were more subjective to allow the board members to see how the Soldiers would act and react to certain questions and situations.

"I wanted the board to be able to question each candidate and make a decision as to whether this Soldier had what it took to become a member of the Sergeant Audie Murphy Club," said Lady.

"Either he or she had it, or they didn't."

The decision to accept a candidate had to be unanimous by the board. The board had each candidate in front of them for about 30 minutes and their questions ranged from how the NCOs and leaders would handle training, morale and motivation in the lives of the troops they lead. Topics ranged from NCOERs, punishment for DUIs, tattoos and appearance regulations, attitude, awards and citations, counseling, AER programs, unit mottos, battle focused training and leading female Soldiers.

During the boards, the candidates were asked how they incorporate the Warrior Ethos into their daily work.

Although the candidates had various occupations that brought on a diversity of answers, each candidate came up with good examples of how they live and breathe the creed and how they strive daily to pass on the willingness to follow the concepts put forth in it to their subordinates, peers and supervisors.

"Sergeant Audie Murphy is certainly a remarkable icon for all professionals in the Army. When you read about his life, you will find he was an extremely quiet professional," added Horne.

"I found a quote that I thought rang fairly true today 'When talking of Soldiers and Soldiering, you have a comradeship, a rapport that you'll never have again. There is no competitiveness, there is no money value, and it's not about financial well-being. It's about trust. Trust of the Soldier on your left and Soldier on your right. That you trust them with your life.' That's what Soldiering is all about. Sergeant Audie Murphy set a good path for us to follow in this regard."

With the new inductions, the SMDC/ARSTRAT SGT Audie Murphy Club now boasts a total of 18 Soldiers inducted into the esteemed club since its first inductee in 2001.

"The Audie Murphy Club is clearly on its way to being a large organization here in Colorado Springs," added Horne.

"This is largely due to the great efforts of you Soldiers, and Command Sergeant Major Lady's leadership and what he has been doing for us the last several years in getting this club off the ground. Your professional competence is clearly some of the best in the Army. Army values — loyalty, duty, respect, selfless service, honor, integrity, and personal courage set the standards for all of us, for our children, for our family members."

Before the end of the ceremony, Lady posed a challenge to some members of the audience. "Senior NCOs out there, you are the leaders I need inspiring those younger Soldiers sitting in the back rows to be up here next year," said Lady.

"We succeed as we develop all of our Soldiers to be more than they've imagined they can be."

Warrior Ethos

I am an American Soldier.

I will always place the mission first.

I will never accept defeat.

I will never quit.

I will never leave a fallen comrade.

I am an American Soldier.

MSG Dennis E. Beebe is a Mobilized Reservist with U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command. He has been in the Public Affairs Office since 2001 and has 23 years combined Active Duty and Reserve experience as a photographer, psychological operations specialist and photojournalist. He has been deployed to Haiti, Korea, Bosnia and Afghanistan and has been stationed in various locations in the Continental United States and Hawaii.

Command In Brief

ARSS TEAM 2 Members deploy to Iraq

By MSG Dennis Beebe

PETERSON AIR FORCE BASE, Colo. — Army Space Support Team (ARSST) 2, a unit of U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command's 1st Space Battalion recently headed to Camp Victory in Baghdad, Iraq to provide Space support to the Multi National Corps, Iraq (MNCI) in support of Operation Iraqi Freedom.

"This team is deploying to Iraq to fight the war on terror, which is our nation's number one priority," said LTC Lee Gizzi, 1st Space Battalion Commander.

"The rest of us here in Colorado Springs, whether it is the 1st Space Battalion or the 1st Space Brigade, have the responsibility of fully supporting the needs of our forward deployed Soldiers. Whatever their support requirements are, we will meet them"

The 18th Airborne Corps had the mission in Iraq until V Corps, with ARSST 2 attached, took over in January.

While deployed, the ARSST will provide Space support to the combatant commander in several ways. The team is an on-site capability that provides satellite imagery from both commercial and military sources. This includes the ability to produce 3-D fly-throughs and maps for both planners and operators. The team keeps a constant watch on Space weather and the effects it can have on Space-based platforms. The team also deploys with its own independent communications system, providing extensive reach back to Space forces, organizations, and analysis centers within theater or back to the U.S.

In preparing the team to deploy, Gizzi reiterated the Warrior Ethos and charged the team with living it.

"This is not a war like we have ever seen in previous times, where you seize terrain and gain ground. It is a war of attrition. I want to ensure that the guys in charge, Major Robinson and Staff Sergeant McCoy, make sure the team does not take shortcuts, and that they adhere to what is important and what is right, and that they bring their team home intact. I have the utmost confidence in their abilities and I look forward to greeting Team two at the end of their tour," said Gizzi.

CPT Matthew Anderson spends time with his daughter during a farewell ceremony for Anderson's Army Space Support Team that is now in Iraq. *Photo by MSG Dennis Beebe*

Spouses of deployed Soldiers honored

By Ed White

PETERSON AIR FORCE BASE, Colo. — Having a husband or wife deployed to a war zone is one of the most difficult events a military spouse can go through, but it's a common thing in today's military. Recently U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command, represented by the 1st Space Brigade CSM Daryall Sumpter and 1st Space Battalion

Commander, LTC Lee Gizzi, held a luncheon to honor the spouses of the brigade's deployed Soldiers. The luncheon provided a great opportunity for these spouses to get to know some of the command staff and allowed the brigade leadership the opportunity to determine how the families of deployed Soldiers are doing in the absence of their spouses.

Six spouses attended the luncheon at the Peterson Air Force Base Officer's Club. Megan Martinez, wife of SSG Jason Martinez with the 2nd Space Company; Donna Rogers, wife of SFC Richard Rogers, G-3 Plans and Exercise; Elizabeth Tompkins, wife of MSG Kenneth Tompkins of Headquarters, Headquarters Company, 53rd Signal Battalion; Alexandra Robinson, wife of MAJ Lawrence Robinson of the 2nd Space Company; and Janet Anderson, wife of CPT Matthew Anderson of the 2nd Space Company all shared anecdotes of situations they have worked through since their husbands deployed.

"We heard stories of broken garage doors, frozen pipes, sick babies and good neighbors responding to help," said MSG Frances Sanchez-Jones of the command G-6, whose efforts were instrumental in bringing the luncheon about.

"We also learned that these women have adjusted, adapted, and overcome a number of obstacles that would have normally been handled by their spouses when not deployed. These are remarkable women, they have no idea how much we appreciate their silent sacrifice," Sanchez-Jones added.

Around the table the discussion turned to what could be done to help the spouses and families of future deployed Soldiers. "More meetings like this," said one spouse. "Better contact with the chain of command," said another. Throughout the discussion, several major issues came to light. One important observation was made on how to reestablish a close relationship with a returning spouse and how to reintegrate the Soldier into family life. For many, the concern has become a larger issue as the redeployment date of their spouses gets

Spouses of deployed Soldiers attending the luncheon include: (left to right) Terri Horne wife of BG Jeffrey C. Horne, who deployed to Iraq in January; Elizabeth Tompkins, wife of MSG Kenneth Tompkins, 53rd Signal Battalion (SATCON); Donna Rogers, wife of SFC Richard Rogers, G-3 Plex; Melissa Pollock, wife of 2LT Matt Pollock, 193rd Space Battalion.; Alexandra Robinson, wife of MAJ Lawrence Robinson, 1st Space Battalion; Megan Martinez, wife of SSG Jason Martinez, 1st Space Battalion; and (seated) Janet Anderson, wife of CPT Matthew Anderson, 1st Space Battalion. *Photo by Ed White*

closer. Information on Web sites and publications that give guidance and information on how to accomplish the reintegration process was traded amongst the spouses.

Gizzi and Sumpter encouraged the wives to call the command via the Emergency Operations Center (EOC) to contact their spouses, especially during emergency situations, or to notify the command of any difficulties with calls. "It is hard to hide from the EOC," Gizzi said. "Rest assured they can track anyone down anywhere in the world and make contact." "The Brigade is here to help in whatever way we can," Sumpter said. "You all are part of our military family and we are here to support you too."

This luncheon was the first of its kind with more to come, providing an informal means for the brigade to maintain two-way contact with family members of Soldiers deployed far from home.

"This was very helpful to us at the brigade," Sumpter said. "Taking care of our Soldiers and their families is a top priority and this interaction will help us do a better job now and in the future."

Luncheon arrangements and gift packages were provided courtesy of Army Family Team Building representative, Tonya Daniels. Also assisting with the luncheon were Karen Butler and 1LT Liesl Hammond, of the G-1.

Army/Air Force Football

MSG Dennis Beebe

PETERSON AIR FORCE BASE, Colo. — With the Army vs. Air Force annual gridiron battle happening at the Air Force Academy's Falcon Stadium, a pep rally was held on Peterson Air Force Base, which is also home to a strong contingent of Army personnel in the form of U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command. Although outnumbered by more than 5 to 1, SMDC/ARSTRAT held their own against the masses of the Air Force personnel in a spectacle of events.

53rd Signal Battalion (SATCON) SPC Ivan Melendez, S-2 NCOIC, harasses the Air Force mascot, "The Bird" during the pep rally. *Photo by MSG Dennis Beebe*

The Air Force Academy Pep Squad, along with their mascot, "the Bird," did their best to whip the crowd into frenzy with cheers and acrobatics as Air Force personnel sold opportunities for people to "Kiss the Mule." The so-called winners of the contest, were the ones who had the highest amount of money paid for them to be the 'kissers.' With red lipstick applied very heavily on their lips, the kissers made their mark on the hind end of the white mule that had been brought in to represent the Army's mascot.

One Air Force lieutenant colonel remarked "I don't know whether to be more concerned about people wanting to kiss an animal, or why guys would want to wear lipstick."

The true competitive events began with a punt, pass and kick contest. Except for the strong northwesterly wind blowing some of the footballs off course, the contest went fairly well with SMDC/ARSTRAT's own SPC Theodore Fuller,

1st Space Company winning the overall contest by beating out the second place finisher by more than 40 feet. The competitors lined up next for the arm-wrestling contest where another 1st Space Company Soldier, SSG Ronald Morgan went through three contestants before letting an Air Force Captain slightly get the best of him in the championship match. Morgan lead throughout the bout and thought he had won, but when he let up his opponent made a big deal and overturned the table in an adrenalin rush. Although Morgan lost, the captain only had two opponents to beat to get to the finals, whereas Morgan had been through three tough matches.

The tug-of-war contest was next with one team from each service lined up on each side of the sand volleyball court. The flag was dropped and the Army team held tough against the heavier Air Force team, but once the cheerleaders for the Air Force started a chant of "Go-Go-Go," the Air Force used the rhythm to overpower a well dug in and tough Army team.

The final contest, which involved a baseball bat and 10 freshly cooked hot dogs, was a bit more complex. Each team of five contestants lined up and in a relay fashion started with ten revolutions around the baseball bat which was held to their foreheads. After becoming thoroughly dizzy and disoriented, the contestants had to run, stagger and thrash their way 25 yards down to the tray of cooked hotdogs and completely down one to the satisfaction of the hot-dog-swallowing-judge before running back and tagging the next team member. The Army jumped out to a quick start with the 53rd Signal Battalion (SATCON) CSM Reginald Williams spinning quickly around the bat and dashing to the hot-dog tray first, but he was held up a bit trying to finish off the hot dog. The Army team had lost a little time but was slowly work-

SPC Ivan Melendez, LTC Hae-Sue Park and 1LT Theodore Perry of the 53rd Signal Battalion, revel after sweeping the Air Force Academy mascot "The Bird" off his feet. *Photo by MSG Dennis Beebe*

ing their way back to the lead when the last Air Force competitor finished his spin, dashed down the track, inhaled a whole dog in 1.2 seconds and dashed back, while the Army's last contestant was still chewing and swallowing. It looked like all was lost until one of the spin-count judges declared the hot-dog inhaler had only spun nine times and was therefore disqualified putting another win in the Army column.

With the events over, the Army and Air Force competitors shook hands, gave each other a slap on the back and went their separate ways. But the real contest was the battle on the football field where the Army Golden Knights defeated the Air Force Falcons 27-24. It was the first time the Knights have defeated the Falcons in Falcon Stadium since 1977. The Knights unfortunately lost later in the year to Navy, and thus lost the Commander in Chief's Trophy, an honor which they have not held since 1996.

Tour de humility

Commentary by SPC Brian L. Metz, 53rd Signal Battalion (SATCON)

OKINAWA, Japan — It's easy to stay humble on Okinawa. Every time you go to the gym there's some Marine curling what you can leg press on a good day. At least a third of the people I work with are flat-out smarter, have fresher brains, or both. At least there's the Tour De Okinawa. It's the most ambitious thing I've ever done, but after watching the septuagenarians ride the same course with what seemed like less effort, the most tempering as well.

This year the 17th Annual Tour De Okinawa, an international multi-course bicycling event, was held Nov. 12 and 13, featuring 18 different events ranging from a 200 km professional race to a 50 meter kids unicycle race, and even three courses

SPC Brian L. Metz poses with a Shi-Sa dog at the finish line of the Tour de Okinawa race. *Courtesy photo*

which traveled to a neighboring island and back.

The professional racers included members from many national teams including Japan, China, and the United States. The event I participated in was the Around Okinawa Island course, a two stage 313 km (190 mile) trip around the island offering a sample of almost every kind of riding to be found.

This event was unlike any I had done in the U.S. for several reasons. To start with, our event did not have any police support for traffic control since that was reserved for the larger racing events. Despite that the actual riding was a lot more controlled by the event staff than I was used to, especially the mandatory rest stops and scheduled restarts. The English-speaking riders were provided a translator named Mikuni-san who was very helpful and even met us at most stops along the way. But the little things like pineapple cake, iced green tea, and small plates of sea-salt next to the usual bananas and sports-drink at the rest stops impressed me as much as anything else.

Stage one was a 189 km clockwise course covering the northern part of Okinawa, which started at the Nago Convention Center roughly centered on the west coast of the island. We started in-groups determined by the stoplight, and with the staff keeping a moderate pace at the front via bikes and motorcycles, started to work our way around the Motobu Peninsula. We were required to stay behind the pace bikes all the way until the first mandatory rest stop. After that we were allowed to ride at our own pace but were still led by an event motorcycle. After the Peninsula, the course went up the west coast around Hedo Point, then down to the small town of Oku where we were stopped for a lunch of pork-broth and greens soup served with steamed rice and oolong tea.

Following the 12 p.m. restart we hit an area that reminded why I was happy to have spent a lot of money modifying my mountain bike to a more road bike configuration, i.e. skinny tires, clip-on pedals, etc. Highway 70 is a gorgeous road with little traffic and few stoplights that winds down the northeast coast and parts of the interior to Highway 329 for about 80 km. It also has many, many, MANY, hills ranging from challenging to brutal. Five hours and three stops later the course turned west, had a slight detour around a Habu (local poisonous snake), traveled back to Highway 58, then finally turned

south to the Kise Beach Hotel where we stayed for the night.

Stage two on Sunday was a much easier 124 km trip around the southern part of the island, which offered a tour of Okinawan weather as well. Starting at Kise Beach, we rode south to Highway 104, turned east and riding through the first rainstorm turned south onto Highway 330. Enjoying both a coastal view and a friendly tailwind, I made it to Okinawa City which is where the fun really began. Okinawan drivers are a bit random in nature. Add to that the coral that's mixed into the asphalt then throw in some rain and you have an attention-getting ride. Shortly after making it to the first check point, the rain was probably causing nine decibel attenuation for my coworkers on shift. A funny thing about thunder is no translation is needed. I was resting under a breezeway next to a Japanese speaking group when we heard what sounded like thunder. Their conversation stopped and we all grinned at each other while waiting for the next rumble.

After a good rest we pushed-on to through the warm

rain to Highway 29 and turned west towards the capital city of Naha. By the time we got there for the lunch break the rain had stopped and the roads even started to dry. Sunday's lunch was a feast. Udon soup (an Asian pasta), seasoned rice, some spicy Octopus, a Prawn, a mix of shredded cabbage and pickled Kelp, two pieces of Tempura fish, and hot and cold tea.

A stoplight-rationed restart onto Highway 58 got us going north back towards Nago. I grinned while passing familiar parts of Naha including the several blocks where the Great Naha Tug-of-War is done, and Tomari Port where the Dragon Boat Races are held. The final 40 km was a blend of stoplights, car dodging and sightseeing. We had three more rest stops, the last including a photo-op for groups, teams and individuals. All this being done during the event instead of after was another first for me. The event finished with a mass restart escorted by motorcycle all the way back to the Convention Center, where all of the riders were greeted by traditional Okinawan music and two-person Shi-Sa dogs.

After the event I had a chance to speak, with Mikuni-san's help, with one of the riders who had been amazing me for the last two days. The man who wore the event number "1" was one of at least two dozen riders over the age of 60. This gentleman, whose name I withhold out of respect for his great humility, is 75 years old, rides this event every year, and plans to continue until he turns 80. Then he plans to slow down and ride it only every three years. Small wonder that despite this being the toughest event I've ever done, I came away with very little pride, just great satisfaction.

100th GMD Soldier pedals his way to victory

By SGT Sara Storey

COLORADO SPRINGS, Colo. — Hard work, endurance and dedication helped smooth the rocky trails for 1SG Herbert Rodriguez as he pedaled his way to victory during a recent mountain bike competition.

Rodriguez is the first sergeant for Headquarters/Headquarters Battery, 100th Missile Defense Brigade (Ground-based Midcourse Defense). The 100th, working in conjunction with other elements of the multi-layered Ballistic Missile Defense System, defends the U.S. Homeland by protecting against accidental or intentional launches of intercontinental ballistic missiles.

Rodriguez took the second place trophy for his age group (age 40-49, males) in the Mountain States Cup Regional Championship Series Sept. 4. This summer series consists of nine races throughout the mountain states — including Colorado, Utah and New Mexico. A typical race is anywhere from 8-12 miles and usually takes place on ski slopes after the snow has melted. Rodriguez said the terrain is rocky, steep and requires a lot of technical expertise to handle twists and turns, while avoiding exposed roots and rocks.

"An average race is five miles straight up and then five miles straight down," Rodriguez said. "The downhill makes the agony of the uphill worthwhile."

Rodriguez began mountain biking in Alabama about four years before coming to the GMD and Colorado. Since he and his family moved here nearly two years ago, Rodriguez has discovered many great mountain biking trails in and near Colorado Springs.

"If you like the great outdoors and mountain biking, this is the place to live," Rodriguez said.

Additionally, Rodriguez has an opportunity to share his expertise with a younger crowd — this year, he coached his son's high school mountain bike team, the Front Rangers Cycling Club.

"I like to encourage kids to exercise and influence the young to live a healthy lifestyle," Rodriguez said. "These days, so many youngsters just sit in front of the TV. It's very rewarding to be so instrumental in getting them outside."

In addition to competing in the nine championship series races throughout the summer, Ro-

1SG Herbert Rodriguez navigates rocky and steep terrain during a mountain bike competition near Colorado Springs, Colo. *Photo by SGT Sara Storey*

driguez and his team do two training rides each week — regardless of weather conditions. They ride mountain bike trails to train for handling rough terrain, participate in road rides to build endurance and take part in criterion races — intense races featuring "explosive acceleration" and taking place on a concrete track. According to Rodriguez, practicing these three different types of biking builds both endurance and technical ability.

Getting out on the trail is the best way to learn, but Rodriguez also encourages his team to read biking articles and learn from the experience of others.

Rodriguez said teaching these eight team members to be better mountain bikers parallels being a good first sergeant in many ways.

"I'm not a coach — I'm just a motivator," Rodriguez said. "I try to teach the kids a good work ethic and I use the Army philosophy of 'crawl, walk, run.'"

Luckily, by the end of the season, Rodriguez's team was up and running — they took first place in the "junior" category of the Mountain States Cup Regional Championship Series. Many of Rodriguez's team also took home trophies in their own age groups.

Rodriguez's experience with his youth team pushes him to the limit and helps him stay in shape.

"I try to lead by example with the youth — I refuse to be the last one up to the top," Rodriguez said.

In addition to his training and competitive rides with the youth team, Rodriguez gets plenty of exercise with adult riders. Rodriguez said he and his friends often do one-half day rides — hard, fast and climbing to incredible elevations. Rodriguez also takes part in an annual Independence Day ride, traveling more than 40 miles over the Continental Divide.

Rodriguez enjoys challenging rides with other enthusiasts — in fact, his motto is "ride with those who are faster than you" — but, he's always willing to help novices. In keeping with this effort, Rodriguez introduced nearly 15 GMD members to mountain biking during a recent unit morale day. The group spent the day negotiating the Air Force Academy's Falcon Trail Sept. 21.

Following are Rodriguez's tips for new mountain bikers:

- Learn proper trail etiquette and practice it.
- Use the buddy system – never ride by yourself.
- Find a local bike club and learn from those with more experience.
- Purchase a quality used bike instead of a less-expensive new bicycle.
- Don't be afraid to take a fall — "if you're not wiping out once in a while, you're not going hard enough," Rodriguez said.

Rodriguez finds mountain biking exhilarating, although he warns that it can be dangerous at times because of the tricky terrain and intense speed.

"Sometimes it seems like there are only two speeds — stopped and wide open," Rodriguez said.

This is true whether mountain biking for pleasure or competition, according to Rodriguez. And, although proud that he took home a trophy this year, winning a competition isn't Rodriguez's No. 1 priority — taking first place is the quality time he's able to spend with his

son while biking, tying for a close second are the fresh air and physical challenges associated with the sport.

"I probably will quit the competitive aspects of mountain biking when my son leaves for college," Rodriguez said. "But, I'll never give up mountain biking — I hope to be known as 'that guy riding the bike who looks like ZZ Top' when I retire."

Delta Diablos raise 38,000 pounds of food during food drive

By SSG Clay Rhoads

CAMP ROBERTS, Calif. — Around mid-November, April Rhoads, Delta Company, 53rd Signal Battalion (SATCON), Family Readiness Group Secretary tuned into the local news and saw that the local county food bank was nearly bare. Due to recent support of Hurricane Katrina and Rita relief efforts and shipments of food to the Middle East earthquake disaster area, the food bank stores were depleted. Knowing that the holiday season was just around the corner and that there would be many families who depended on the San Luis Obispo County Consolidated Food Bank for support, Rhoads along with the rest of the Family Readiness Group got together and immediately started brainstorming how they could contribute. What they came up with would exceed all expectations, even their own. It took a month of planning, coordination, calling, emailing (even while on vacation for some), but the date for the Delta Company Community Food Drive, nicknamed "Food for Folks," was set.

On Dec. 16-17 from 10 a.m. to 3 p.m. each

Left to right, SSG Clay Rhoads, SGT Taylor Roynon and SPC Matthew Decicco hold a sign to attract attention to Delta Company's holiday food drive "Food for Folks." Delta Company raised enough food and cash donations to supply the local food bank with more than 38,000 pounds of food. *Photo by SGT Valencia Hollaugh*

day, more than 30 Soldiers, spouses, and even their kids gathered in the Paso Robles Albertson's parking lot and started collecting donations, both monetary and food. The idea was to give back to the community that has whole-heartedly supported them, even though many supporters did not know that there is still active duty military on Camp Roberts. "The community has always supported us in all the fundraisers that we have put on for the unit. We just saw this as the perfect opportunity to give back to them. It felt really great to be a part of something like this," said Rhoads.

Soldiers danced on street corners, local news crews showed up, and Soldiers did push-ups at the customer service desk for donations. All the stops were pulled out to get the community on our side. "It felt good to do something for all the people in the community that aren't as fortunate as most," said SPC Matthew Decicco. "They are the ones who are always there for us, so this was just a way to show our appreciation." The added bonus was that the food bank could buy 15 pounds of food for every dollar donated. When the smoke cleared, everybody worn out, the final count was staggering.

All in all, the Soldiers and their families had raised an impressive total of nearly 3,000 pounds of donated food, and more than $2,300 in cash donations which translated into over 38,000 pounds of food for the food bank. To put this into perspective, a local radio station was planning to do their own food drive and was aiming for 98,000 pounds in seven days. Overwhelmed by his Soldiers' and their families' efforts, CPT Conway Lin reflected, "I am proud of the size of Delta Company's heart."

Missile Defense Flight Test Successfully Completed

Excerpt from Missile Defense Agency release

The director of the Missile Defense Agency, Air Force LTG Henry "Trey" Obering, announced the successful completion of an important test involving the launch of an operationally-configured Ground-based Interceptor missile designed to protect the United States against a limited long-range ballistic missile attack.

The test, held Dec. 13, was primarily designed to evaluate the performance of the interceptor missile's rocket motor system and exoatmospheric kill vehicle, which is the component that collides directly with a target warhead in Space to perform a "hit-to-kill" intercept using only the force of the collision to totally destroy the target warhead. Initial indications are that the rocket motor system and kill vehicle performed well.

The flight test results will help to further improve and refine the performance of numerous Ground-based Midcourse Defense (GMD) elements that will be used to provide a defense against the type of long-range ballistic missile that could be used to attack an American city with a weapon of mass destruction.

The interceptor missile was launched at approximately 3:04 p.m. (local time, Dec. 14); (10:04 p.m. Eastern Standard Time, Dec. 13) from the Ronald Reagan Test Site, Republic of the Marshall Islands, in the central Pacific Ocean. For this exercise, there was a simulated launch of a target missile from Kodiak, Alaska using data from previous launches.

The test also successfully tested a wide variety of components and subcomponents as part of the evaluation of system performance, including improved missile silo support equipment, booster/kill vehicle separation, kill vehicle cryogenic sensor cooling, kill vehicle orientation and positioning, and several others.

The Ground-based Midcourse Defense system currently has seven interceptors deployed at Fort. Greely and two at Vandenberg Air Force Base, Calif. Other components of the Ground-based Midcourse Defense currently include the upgraded Cobra Dane radar in the Aleutian Island chain of Alaska, and upgraded early warning radars at Beale Air Force Base, Calif., and at Fylingdales in the United Kingdom. Up to four forward deployed air-transportable X-band radars are also planned for the system, as well as an upgrade to the existing early warning radar at Thule Air Base in Greenland. A new seabased X-band radar mounted aboard a large sea-going platform began its transit in November to its operating base at Adak, Alaska in the Aleutian Islands. It will have the capability to operate in any ocean to support both operations and testing.

Insurgent forces attempt to avoid the overwhelming conventional superiority of U.S. forces by using tactics designed to exploit perceived vulnerabilities in our capabilities. Even those who are not catching up with us technologically can do us harm on the cheap, frequently employing relatively low-technology weapons like improvised explosive devices. However, our Soldiers are demonstrating extraordinary resourcefulness against this cunning enemy, employing capabilities — including those that are Space-based — in new ways to achieve operational success while protecting the lives of coalition forces and noncombatants.

Flattening with Space-Based Capabilities

Identifying warfighters' most relevant operational capabilities is an ongoing process, but one principle, in particular, is at the forefront: Situational Awareness. The goal of Situational Awareness is to enable Joint Warfighters to communicate with each other, share information about their location and that of the enemy, and simultaneously see the same, precise, real-time picture of the battlespace.

Situational Awareness is particularly vital given the challenges of conducting operations in built-up and mountainous areas, often referred to as "complex terrain." These areas may also include dense urban settings and the contested littorals where the majority of the world's population and economic activity are centered. Buildings, mountains and other permanent structures in complex terrain block line-of-sight communications and prevent Soldiers from seeing the enemy, as is often the case in Iraq and Afghanistan. Recent combat operations suggest the Army will continue to operate in this type of terrain in the future.

Space-based capabilities are vital to warfighting in complex terrain by contributing to responsiveness and accuracy. Recognizing the potential of Space-based capabilities in complex terrain, LTG Thomas Metz, former Commanding General, Multi-National Corps — Iraq, recently observed, "Our precision [now] enables us to take the fight to the enemy in an urban fight."[7]

Situational Awareness includes capabilities in the areas of ballistic missile early warning, precision navigation and timing, and geospatial data. This area also encompasses Joint Blue Force Situational Awareness. The Fall 2004 and Spring 2005 issues of the Army Space Journal contain multiple articles referencing recent developments in JBFSA. I encourage your review of both issues.

The importance of ballistic missile early warning facilitated by Space-based assets was aptly demonstrated during Operation Iraqi Freedom (OIF) when Defense Support Program (DSP) satellites were used extensively to locate Iraqi missile launches, predict their target and provide warning. In an unclassified report, the commander, Combined Forces Air Component Command, estimated U.S. infrared satellites between March 19 and April 18, 2003 detected 26 Iraqi missile launches, 1,493 static events, and 186 high-explosive events.[8] Ballistic missile early warning capabilities will become significantly enhanced in the coming years as the Space Tracking and Surveillance System and Space-Based Infrared System High satellites are launched and achieve operational capability. Clearly, the importance of Situational Awareness is extended into Space. Space Situational Awareness (SSA) will have increased importance in the future since it is the first step to protecting our Space assets and the capabilities they provide. SSA is fundamental to protection, prevention and negation.

Our forces currently receive ballistic missile early warning support via the jointly manned Joint Tactical Ground Stations (JTAGS), forward deployed in multiple positions around the world. JTAGS provides a vital in-theater capability to receive, process and disseminate ballistic missile warning information from infrared data obtained by the DSP satellites. The new hardware and software upgrade of the JTAGS to a Multi-Mission Mobile Processor configuration will tremendously expand the current capabilities of JTAGS.

Our military's use of the GPS created a significant military advance in precision navigation and timing. GPS satellites send continuous navigation and timing signals that allow users around the world to find their position in latitude, longitude, altitude and time. The signals are so accurate that time can be figured to less than a millionth of a second, velocity to within a fraction of a mile per hour and location to within a few feet. The GPS network used by the U.S. currently has 24 primary satellites in six orbital planes with four satellites in each. Additional satellites are on orbit to serve as back-ups and provide additional coverage.

The GPS is vital to support guidance and navigation of "smart weapons." Hand-held GPS systems are also being field tested in Iraq that come pre-loaded with maps and databases and have the ability to display the Military Grid Reference System.[9] As noted by LTG Daniel Leaf, former Vice Commander,

Our Nation's challenges are more complex, more subtle and harder to recognize — and they cannot be addressed by simply refocusing old capabilities on new adversaries. Our job is to know what Space capabilities exist, understand those capabilities well enough to think of creative and innovative ways to use them and execute with enough strategic vision and determination to see and bring those capabilities to fruition.

Air Force Space Command, "A Soldier, or Marine or Airman on the ground in Iraq benefits from Space capabilities by being able to see the enemy, being able to communicate their plans and intentions and request support via satellite communications, [and] knowing precisely where they are, through [the] Global Positioning System."[10] The blue force tracking devices, Force XXI Battle Command Brigade and Below, Grenadier Beyond line-of-sight Reporting and Tracking, and Movement Tracking System, all depend on Space-based capabilities to convey data for development of a common operating picture.

The failed attempt during OIF to jam U.S. GPS signals created an important recognition of the importance of this system for our military capabilities. GEN Lance W. Lord, commander, U.S. Air Force Space Command, noted, "Saddam Hussein tried to jam our GPS satellites during OIF. We certainly knew it was occurring, and we also attacked GPS jammers with GPS-aided direct attack munitions and killed them."[11]

Although originally designed as a guidance and navigational tool for the military, the GPS has also proven extraordinarily beneficial in the fields of transportation and surveying, commercial aviation and search and rescue operations. Police departments across the country already use the GPS to monitor the location of their officers and police cars. GPS satellites aid in tracking stolen cars and monitoring the location of persons fitted with ankle bracelets. Over a million new vehicles sold in 2005 were equipped with GPS navigation systems.[12] Also, during the wake of Hurricanes Katrina and Rita, "our GPS system helped our response units navigate areas devoid of landmarks or signs of previous existence."[13]

The current fleet of GPS satellites is being upgraded to the GPS IIR-M series that features new military signals, allowing for better security and anti-jamming, as well as a second civil signal that will provide for increased accuracy. GPS-III satellites, expected to launch in 2013, will eventually replace the constellation of GPS satellites now on orbit. The new system will feature a "spot beam" capability to boost the power of the signal for users in a particular area. This spot beam and other features are expected to make the GPS-III system more jam resistant than satellites now on orbit.[14]

The benefits of the GPS are not lost on the international community. The Russian GLONASS system currently includes 17 satellites in orbit, with plans for a full constellation of 24 satellites.[15] The Japanese also plan to launch a GPS constellation, the Quasi-Zenith Satellite System. On Dec. 28, 2005, the European Union (EU), representing a consortium of nations, launched the first of 30 planned GPS satellites that will

be part of the Galileo project. The Agreement on GPS-Galileo Cooperation, signed in June 2004, ensures that Galileo's signals will not harm the navigation capabilities of the U.S. and the North Atlantic Treaty Organization military forces and ensures an important compatibility between the American GPS and the EU counterpart. Clearly, the importance of GPS has expanded over the past several years, and is expected to increase — or flatten — further as accuracy is enhanced and systems proliferate.

Spectral imagery is used extensively to support military planning and combat operations in Afghanistan and Iraq by providing information on terrain and other areas of interest. As an example, the IKONOS satellite, a high-resolution commercial satellite that can provide 1-meter-resolution panchromatic (black and white) and 4-meter-resolution multi-spectral (color) images, collected more than 400,000 square kilometers of imagery over Afghanistan to permit updates of maps.[16] Throughout the early phases of OIF, aerial surveillance aircraft, unmanned aerial vehicles and imagery from commercial satellites were "integrated, processed and disseminated to tactical users faster than in the past."[17]

The quality and accessibility of spectral imagery will continue to increase as additional commercial satellites are launched. The WorldView commercial imaging satellite, capable of collecting images with 50-centimeter panchromatic and 2-meter multi-spectral resolution, is schedule to launch in 2006.[18] The military importance of commercial imagery has been enhanced, in particular, by the capability to share it with coalition members.

During the early phases of OIF, the SMDC/ARSTRAT Spectral Operations Resource Center (SORC) delivered hundreds of imagery-based spectral products, including those used for identification of terrain hazards, drop zone analysis, and route reconnaissance. Imagery was also invaluable to the detection of soil disturbances that led to the discovery of mass graves of men, women and children killed during the regime of Saddam Hussein. The SORC articles in the Spring 2002, OIF Special Edition (Volume 2, Number 3), and Winter/Spring 2004 (Volume 3, Number 1) editions of the Army Space Journal provide excellent recaps of their contributions.

Expanding on the already extraordinary capabilities of spectral imagery is the broader discipline of Measurement and Signatures Intelligence (MASINT) and Advanced Geospatial Intelligence (AGI), which are focused on the collection, processing and analysis of distinctive characteristics of fixed or dynamic sources. Physical evidence in some form is left behind by virtually all activities and events. MASINT and AGI analysts measure physical characteristics of targets or events and provide information on their location, composition and performance. Almost all sensors can provide information that MASINT and AGI analysts can exploit, including radar, optical, infrared, acoustic, nuclear, radiation detection and seismic systems, as well as gas, liquid and solid materials sampling systems.[19] As demonstrated during the Joint Task Force-Katrina relief efforts, hyperspectral sensors can provide data where identification of materials can only be made through technical analysis, as with identifying the types and extent of pollutants in massive flooded areas.

Space-based systems, with their vast fields of view and capability to conduct remote sensing, are well suited to perform this broader analysis mission and are a valuable source in which to provide support to warfighters. Formation of the new U.S. Strategic Command Measurement and Signatures Intelligence (USSTRATCOM/MASINT) AGI Node in August 2005 builds on the capabilities of the SORC by providing expanded capabilities and tailored MASINT and AGI products to warfighters.

Netcentricity: The Vital Enabler

Enabling the synchronized application of Situational Awareness capabilities will require the development of a seamless, secure grid that connects the systems and delivers the capabilities to joint warfighters. The Global Information Grid (GIG), envisioned as a system-of-systems that encompasses all levels of battle command, will link commanders and Soldiers on-demand with the necessary voice, data and video communication, command and intelligence capabilities. The GIG will be used to support informational superiority, locate and identify the enemy, and provide the capability to deliver kinetic and non-kinetic effects before the enemy can engage.

The GIG, which is being formed based on networks and communications systems, will provide the means for forces at all levels to achieve situational understanding and establish, maintain and distribute a relevant common operating picture for joint warfighters. A meaningful step in the construction of this integrated network occurred on Dec. 20, 2005

when the GIG Bandwidth Expansion (BE) effort achieved full operational capability. The GIG BE is a massive project to "link 92 defense and intelligence sites across the globe to a new high-speed Internet Protocol network."[20] Programs envisioned under the broader GIG architecture include the Transformational Communications Satellite, the Joint Tactical Radio System and the Network Centric Enterprise Services.[21]

A Challenging Time for Space

GEN Peter J. Schoomaker, Chief of Staff, Army, recently noted, "The challenge for the future is to develop capabilities that provide overwhelming dominance for the Soldier, especially those who engage in the brutal, often deadly, close tactical fight, or those who engage in complex stability and humanitarian operations that we're surely to see more of in the future. We must put American technology, intellect and resources to work to ensure success and the safety of those who perform these difficult tasks."[22] With this succinct guidance, the pathway for the near future is identified for all Soldiers, but notably Space professionals responsible for providing cutting-edge capabilities for timely support of operational requirements.

Our Nation's challenges are more complex, more subtle and harder to recognize — and they cannot be addressed by simply refocusing old capabilities on new adversaries. Our job is to know what Space capabilities exist, understand those capabilities well enough to think of creative and innovative ways to use them and execute with enough strategic vision and determination to see and bring those capabilities to fruition. "Flattening with the New Common of Space" is a key step in that direction. Secure the High Ground!

REFERENCES

1. Alfred Thayer Mahan, "The Influence of Sea Power Upon History, 1660-1783," Boston: Little, Brown, & Co., 1890, on-line at <http://www.gutenberg.org/files/13529/13529.txt>, accessed Dec. 13, 2005.

2. Daniel H. Pink, "Why the World is Flat," on-line at <http://www.wired.com/wired/archive/13.05/friedman.html>, accessed June 17, 2005.

3. Speech given by Senator Wayne Allard, Sept. 23, 2005, at the National Defense Industrial Association Space Policy and Architecture Symposium, on-line at <http://www.globalsecurity.org/space/library/news/2005/space-050923-ndia-allard.htm>, accessed Oct. 15, 2005.

4. Space Today Online, "Tourists Visit the International Space Station," on-line at <http://www.spacetoday.org/Astronauts/SpaceTourists.html>, accessed Dec. 9, 2005.

5. Secretary of Defense Donald Rumsfeld, National Defense Strategy, March 1, 2005, on-line at <http://www.defenselink.mil/news/Apr2005/d20050408strategy.pdf>, accessed Dec. 20, 2005.

6. President George W. Bush, 18 December 2005, on-line at <http://www.whitehouse.gov/news/releases/2005/12/20051218-2.html>, accessed Dec. 19, 2005.

7. LTG Thomas F. Metz, remarks at the Greater Los Angeles Chapter of the Association of the United States Army Symposium, June 3, 2005.

8. LTG T. Michael Mosely, "Operation Iraqi Freedom – By The Numbers," United States Central Command Air Forces, Assessment and Analysis Division, April 30, 2003, 9, on-line at <http://www.globalsecurity.org/military/library/report/2003/uscentaf_oif_report_30apr2003.pdf>, accessed Dec. 20, 2005.

9. "Homeland Security Technology Offers GPS Systems With Iraq Street Maps To U.S. Armed Forces," Space War.com, May 6, 2005, reprinted in Air Force Space Command News Clips, May 9, 2005.

10. Al Pessin, "Assets in Space Help Ground Troops," Voice of America, July 13, 2005, reprinted in National Security Space Institute Space News, July 18, 2005.

11. "Signal Jamming A Factor in Future Wars, General Says," The Washington Times, Bill Gertz, July 16, 2004; reprinted in Space and Missile Defense Current News, July 16, 2004.

12. Michelle Alexandria, "GPS Systems Getting Smaller," SpaceDaily, Dec. 14, 2005, reprinted in National Security Space Institute Space News, Dec. 19, 2005.

13. Allard, Ibid.

14. "The GPS Constellation: Now and Future," Defense Industry Daily, Aug. 24, 2005, reprinted in National Security Space Institute Space News, Aug. 30, 2005.

15. "Russia adds three satellites to GLONASS system, "NOVOSTI Russian News and Information Agency, Dec. 25, 2005, on-line at <http://en.rian.ru/russia/20051225/42689642.html>, accessed Dec. 29, 2005; "India To Use Russian GLONASS Navigation System – Minister," Space and Earth Science News, Nov. 18, 2005, on-line at <http://www.news-about-space.org/story/8296.html>, accessed Dec. 29, 2005; "GLONASS to Have 18 Satellites in Orbit in 2008," Jan. 19, 2006, SpaceDaily, GPS News, reprinted in reprinted in National Security Space Institute Space News, Jan. 24, 2006.

16. Gene Colabatistto, "High-resolution Homeland Security," Intelligence, Surveillance, and Reconnaissance Journal, September-October 2004, 8.

17. Loren Thompson, "Satellites Over Iraq," Intelligence, Surveillance, and Reconnaissance Journal, March 2004, 19.

18. Website link on-line at <http://www.ballaerospace.com/worldview.html>, accessed Dec. 12, 2005.

19. "IC21: The Intelligence Community in the 21st Century Staff Study," Permanent Select Committee on Intelligence, House of Representatives, One Hundred Fourth Congress, on-line at <http://www.access.gpo.gov/congress/house/intel/ic21/ic21007.html>, accessed Dec. 29, 2005.

20. "DISA Chief Announces Full Operational Capability for GIG BE," Inside the Pentagon, Jan. 5, 2006.

21. Gail Kaufman, "A World of Knowledge," Intelligence, Surveillance, and Reconnaissance Journal, June 2004, 19.

22. GEN Peter J. Schoomaker, remarks at the AUSA Eisenhower Luncheon Speech, Washington Convention Center, Washington, D.C., Oct. 4, 2005, on-line at <http://www.army.mil/leaders/leaders/csa/speeches/20051004.html>, accessed Oct. 11, 2005.

Letters ... from page 3

concept of a supported versus a supporting commander is well established in joint doctrine: Global Strike is supported — and necessarily so — by the sensors, communications and positioning satellites based in Space. But when it comes time to actually act; only the long-range strike assets of Eighth Air Force can do the job. There is nothing nefarious about this arrangement; it is merely sound joint doctrine.

It is regrettable that Mr Collins cannot put aside his green uniform and avoid the pitfalls of parochialism. Moreover, I'm disappointed in your magazine for condoning and perpetuating this sort of interservice rivalry. You have a responsibility to promote Jointness. Collins' facts and logic are so obviously flawed you could have and should have set him straight. Instead, you have allowed an official Army organ to be used as a mouthpiece for a parochial diatribe. You need to get with the Joint Program.

— Phillip S. Meilinger,
Col (USAF, Ret)

I recently picked up a copy of the Spring 2005 ASJ and was intrigued by the title of the letter to the editor, "Time for a new Space force" by Mr. Glenn Collins. As a member of the U.S. Air Force Space community, I was looking forward to reading the letter to see what arguments and support the author would put forth in the debate on this issue. However, as I read the letter it became clear that the reasons put forth by Mr. Collins and more importantly, the support for those reasons was severely lacking. The author did not provide any concrete support for his arguments other than a few anecdotes and personal opinions, which while sounding authoritative, do not stand the test of critical reasoning. This letter will address only three suppositions Mr. Collins puts forth but then offers no corresponding facts of support.

First, the author posits that younger Space officers are so concerned about getting promoted that they are reluctant to step forward and become the next "Billy Mitchell" to spur on the creation of a separate Space force. Where are the facts for such a statement? Did the author take a random poll of junior officers to substantiate this claim? We are left to wonder and take his statement at face value. But having served in the Space and missile career field for 16 years, I have never heard any discussions from junior or senior officers on this subject, let alone a fear of reprisal. Speaking from experience, the vast majority of junior officers do not spend any amount of time concerned with the political aspects of Space force organization. Day in and day out, they are more concerned with the tactical execution of the Space mission they have in front of them, which does have a direct bearing on their future promotion possibilities.

Second, the author seems to have a fascination with who commands both air and Space organizations. In four separate paragraphs, Mr. Collins uses as support for Air Force foot-dragging on the issue of a separate Space service that the Air Force assigns pilots to lead Space organizations, but no Space officers are assigned to lead flying organizations. Using this logic then, if we just named a few Space officers to command flying units, things would turn out all right. Clearly this would not make a difference in the formation of a new Space organization. There is another problem with this assertion however, and that is the author's statement that this dichotomy is in violation of the Space Commission report.

In his letter, Mr. Collins incorrectly states that the Space Commission report had the "charter to fix the Air Force's Space organization." The charter of the commission which was directed by Congress was among other things, to "assess the organization and management of Space activities that support U.S. national security interests."[1] The focus of the commission was on all national Space entities and processes, not just the Air Force. Mr. Collins asserts that the Air Force is violating the Commission's mandate by assigning pilots to command Space forces.

The Commission's recommendations did not prohibit the assignment of other than Space professionals to command Space units, nor did Congress when it enacted the legislation to implement many of the Commissions recommendations into law.[2] It is true that the commander of Air Force Space Command (AFSPC) used to be "tripled hated" with authority over two other commands, but that arrangement has since been separated so his sole focus is on AFSPC. Also, Mr. Collins does not tell us what Space commands are being led by non-Space officers. The closest I can come would be the Vice Commander of AFSPC, Lieutenant General Daniel P. Leaf. I would submit that his background in Operations Iraqi Freedom as the Director of the Air Component Coordination Element (ACCE) to the Coalition Forces Land Component Commander (CFLCC) makes him a great choice to ensure that Space forces maintain a warfighter's outlook on their operations.

The current commander of AFSPC, General

Lance Lord, is a career Space and missile officer as is the commander of 14th Air Force who oversees the daily operations of Space forces. Even the Deputy Commander of U.S. Strategic Command (USSTRATCOM) is a career Space and missile officer who left the National Security Space Office to go to USSTRATCOM.

I find it somewhat ironic that Mr. Collins would say that the Air Force is not complying with the Secretary of Defenses (SECDEF) guidance on the issue of pilots commanding Space units, when the SECDEF himself named Marine General James E. Cartwright, a naval aviator with no Space experience, to command USSTRATCOM. USSTRATCOM is in charge of all military Space activities for the nation. I guess the SECDEF figured with an Air Force Space officer as his deputy, General Cartwright would do all right. This leads me to my last point about USSTRATCOM and the new Joint Functional Component Command for Space and Global Strike (JFCC-S&GS) organization.

Third, the author maintains that the Air Force was behind USSTRATCOM's decision to form the JFCC-S&GS and that the 8th Air Force commander was chosen over the "obvious choice" of the Commander, AFSPC; he again infers that pilot politics had something to do with the decision. I cannot dispute the accuracy of his claim as I have no knowledge of the JFCC-S&GS genesis; however, I do dispute his rationale that the commander of AFSPC was not selected for the reasons Mr. Collins alludes.

Any major command in the Air Force or other service is mandated by Title 10 of U.S. Code to organize, train, and equip forces for the combatant commands. These four-star major commands, AFSPC included, are not designed to be warfighting organizations. In the Air Force, command and control of warfighting units is executed by our Numbered Air Forces (NAF) of which 8th Air Force is one, but so is 14th Air Force which belongs to AFSPC. If a Space unit were to be selected to head the JFCC-S&GS, the logical choice would not be AFSPC, but 14th Air Force. 14th Air Force has the command and control organization in place with their Joint Space Operations Center (JSpOC) at Vandenberg Air Force Base, California to effectively direct operations which they currently do for all combatant commands. Again, I do not know the details of this organization, but to assert that it was done for the reasons that are "obvious, but unstated" does not hold up to further scrutiny.

To be fair to Mr. Collins, I do agree that the Air Force has not always had the same outlook on their responsibilities when it comes to the nation's military use of Space as they do now. Indeed, it seems it was the Space Commission report that really forced the Air Force to step up to their lead service responsibilities when it came to national military Space operations. However, great strides have been made to implement the recommendations of the Space Commission and the resultant law passed by Congress.

As Senator Bob Smith, (R-NH) co-sponsor of the bill to implement the recommendations of the Space Commission said on the Senate floor,

Space dominance is too important to the success of future warfare to allow any bureaucracy, military department, or parochial concern to stand in the way. To protect America's interests we need to move forward consistent with the spirit of the Space Commission. This legislation is a good first step.[3]

This is the same conclusion that the Space Commission itself came to when it concluded, "Meanwhile, near- and mid-term organizational adjustments should be fashioned so as to not preclude eventual evolution toward a Space Department if that proves desirable."[4]

This is a good first step and it does not mean that the debate over this issue should be shelved but the debate must go beyond mere anecdote and personal beliefs. If we are to advance the debate on the nation's need for a separate Space force, let us do so with cogent arguments backed by critical reasoning that will enable decision makers to choose the right course of action.

— Lt. Col. Tracy L. Knueven, USAF
Department of Joint and Multinational Operations
U.S. Army Command and General
Staff College
Fort Leavenworth, Kan.

1. The Commission to Assess United States National Security Space Management and Organization, Washington, DC: U.S. Government Printing Office, January 11, 2001, p. 1.

2. Senate Bill S.1368, To amend title 10, United States Code, to improve the organization and management of the Department of Defense with respect to Space programs and activities, and for other purposes. 107th Congress, 1st Session, August 3, 2001

3. Congressional Record: August 3, 2001 (Senate), Statements on Introduced Bills and Joint Resolutions, Page S8913-S8972.

4. The Commission to Assess United States National Security Space Management and Organization, Washington, DC: U.S. Government Printing Office, January 11, 2001, p. 80.

When one of NASA's remote tracking stations had problems just prior to the launch, the Diego Garcia tracking station became the primary site for critical telemetry, said CPT Richard Rutowicz, an AFSCN crew commander for 22nd SOPS.

The tracking station provided "good to excellent" telemetry, according to end users.

"As the first of 18 possible launches scheduled for 2006, this successful launch demonstrates the criticality of the network tasking order and AFSCN to launch operations," said Brian Bayless, 22nd SOPS scheduling branch chief.

Journey to the edge of the Solar System

Air Force Space Command News Service
1st Lt Kevin Coffman, 45th SW Public Affairs
PATRICK AIR FORCE BASE, Fla.—The 45th Space Wing supported the successful launch of the NASA Pluto New Horizons Spacecraft on an Atlas V rocket from Space Launch Complex 41 here Jan. 19.

The wing provided Eastern Range and launch base support to Lockheed Martin and International Launch Services, who served as the commercial Spacecraft and booster vehicle provider to NASA.

Launch officials scrubbed the mission twice earlier due to weather issues. This launch marked the first time an Atlas V has flown with five boosters strapped-on. Prior to this mission, three was the most. This was the fastest rocket to leave the Earth's atmosphere with about two and a half million pounds of thrust at launch and ending up traveling to Pluto at 36 thousand mph.

Lockheed Martin Delivers Pac-3 Stockpile Reliability Test Missiles

DALLAS, Texas (SPX) Feb. 06, 2006

Lockheed Martin recently delivered the first Patriot Advanced Capability-3 (PAC-3) Stockpile Reliability Test (SRT) Missiles to the U.S. Army during a ceremony at Lockheed Martin's facility in Camden, Ark. The delivery marked the first major milestone in the Operations and Support (O&S) phase of the PAC-3 Missile program.

Russia To Build New, Anti-Missile Warning System

MOSCOW (AFP) Jan. 31, 2006

Russian Defense Minister Sergei Ivanov announced Tuesday that Russia would build a new missile defense warning station in the south of the country, thus decreasing its dependence on radar systems based in nations such as Azerbaijan and Ukraine.

MISSILE DEFENSE

BMD Watch: Trident Subs Will Fight Terror

By Martin Sieff, UPI Senior News Analyst
WASHINGTON (UPI) Jan. 25, 2006

The U.S. Navy is converting some of its prized nuclear strategic submarines to launch precision, conventional munitions strikes against terrorist bases and similar targets.

Four ultra-stealth Ohio-class SSBNs are having their 24 Trident II D-5 nuclear ballistic missiles removed and replaced with up to 154 Tomahawk cruise missiles, Defense Industry Daily reported Jan. 18.

Congress Gives Alaska $150M Boost With Missile Defense Deployment

WASHINGTON, D.C. (UPI) Feb. 08, 2006

Congress has given the long-troubled Missile Defense Agency's Ground-Based Midcourse-Interceptor program a financial boost, allowing it to deploy planned interceptors more rapidly, the MDA's chief has told an Alaska newspaper.

The new Defense Appropriations Bill contains provisions to shift $150 million from within the MDA's budget from other programs to fund expanded and accelerated interceptor deployment, Air Force LTG Henry "Trey" Obering III told the Fairbanks Daily News-Miner in an interview published Sunday.

Professional Reading

"Space Notes" excerpts professional articles of interest to Space professionals. The section will attempt to present a broad spectru m of newsworthy items, with references to the full article for those who wish to read further. Suggestions and submissions for this section are solicited, and should be forwarded to the Managing Editor at Space.journal@us.army.mil.

Air Force Seeks Boost in Space Spending

WASHINGTON — The U.S. Air Force is asking Congress for $9.8 billion for military Space programs in 2007, an increase of $500 million over the current budget, according to U.S. Defense Department officials.

NASA Seeks 30 Percent Increase for Exploration Program; Overall Budget Would Rise Just One Percent

WASHINGTON — Efforts to replace the Space shuttle fleet with new Moon-bound spacecraft would receive big spending increases under NASA's 2007 budget request, while nearly every other part of the U.S. Space agency's budget would be held flat or decline.

NASA budget: Right vector, time for more thrust

COLORADO SPRINGS, Colo. (Feb. 6, 2006) Space Foundation President and Chief Executive Officer Elliot G. Pulham made the following statement today in response to the release of the President's FY 2007 budget proposal for NASA:

"The Vision for Space Exploration and the President's budget proposal has NASA headed in the right direction. This is the right vector, but it is time for more thrust.

We commend the White House for providing NASA with a budget that demonstrates commitment to Space exploration. The modest 3.2 percent increase over the FY06 baseline means the nation can carry through on its commitments to return the Space shuttle to flight, complete the International Space Station, and pursue renewed exploration of our solar system.

U.S. to deploy radar in Japan

Associated Press

The United States plans to deploy in Japan within the next six months mobile X-band radar for an advanced early warning system against ballistic missiles, a senior U.S. Missile Defense Agency official said Monday.

The Japanese Air Self-Defense Force base in Tsugaru, Aomori Prefecture, is seen as the most likely candidate site to build the ground-based radar chiefly aimed at detecting incoming missiles from North Korea.

22 SOPS supports NASA mission to Pluto

Air Force Space Command News Service
Staff Sgt. Don Branum
50th Space Wing Public Affairs

SCHRIEVER AIR FORCE BASE, Colo.—The 22nd Space Operations Squadron here provided critical support for NASA's New Horizons probe, which launched from Cape Canaveral Air Force Station, Fla., Jan. 19.

The Air Force Satellite Control Network relayed booster and upper-stage telemetry data from the Spacecraft to engineers on the ground, said Maj. Karilynne Wallace, 22nd SOPS Detachment 1 commander at Vandenberg Air Force Base, Calif.

Left: A lone U.S. Marine, one of the Space Operations Officer Qualification Course students contemplates a site feature during the tour at Kirtland Air Force Base, N.M.

Below: Members of the course pose at Kirtland Air Force Base during a recent tour of the SMDC facility on the base.

components and payloads, integrating them for Space and near-space (high altitude balloon) flights.

The 16,500 square foot facility is equipped to provide: vibration, shock acceleration, environmental and thermal variation testing to flight components and payloads. Experimenters and contractors at AFRL's Space Vehicles Directorate conduct integrated payload testing under realistic launch and orbit environments. This facility is operated by the AFRL's Space Technology Integration and Demonstration Division. Again, students asked lots of questions and received professional answers from all the sites visited over the two days at Kirtland.

On the second day, the students were able to visit the Operations Center to take a look at Research and Development Spacecraft Operations as well as visit and talk to folks at the Department of Defense Space Test Program facility.

The students also visited the Mobile Spacecraft Telemetry, Tracking and Commanding range and the Starfire Optical Range before heading back to Colorado Springs to get ready for the Space 200 portion of the course.

Once the students completed the four-week Space 200 course, they attended another site visit, this time to Vandenberg Air Force Base, Calif., where they visited the Northrup Grumman facility to receive information about Space Technology as well as to participate in a Boeing Satellite Industry Tour. The visit to Vandenberg included site visits and tours to the 14 Air Force, Space Air Operation Center, 30th Space Wing, 614th SIS, 2nd Range Operations Squadron, Western Range Control Center tour, Ground-based Midcourse Defense (GMD) facilities tour, Launch Control Center/Readiness Control Room, and the Missile Assembly Building. The third major field trip for the class was a week-long trip to the Washington, D.C., area where students had the opportunity to visit a variety of Space-related agencies such as SMC HQs, National Security Space Office, National Reconnaissance Office, National Security Agency, Army Space Program Office, Topographic Engineering Center, National Ground Intelligence Center and other agencies.

The field trips are an integral and vital part of each of the Space Operations Officer Qualification Course — providing hands on experiences to complement classroom instruction throughout the 11-week experience.

Tom Coleman serves as Chief, Curriculum and Faculty Development for the Future Warfare Center, Directorate of Combat Development. Coleman graduated from Brigham Young University with a Bachelor's Degree in Communications and holds a Master of Science Degree in Human Resource Management from Troy State University. Coleman enlisted in the U.S. Air Force in 1971 then entered Officer Training School in 1979 and was commissioned as an Imagery Intelligence Officer. In 1983, Coleman cross trained and began serving as an Air Force Education and Training Officer. His training assignments included tours with HQ ROTC, USAF Occupational Measurement Center, USAF Academic Instructor School (AIS), and serving as Chairman, Evaluation Department, AIS, Ira C. Eaker Center for Professional Development, Air University. Prior to his current position, he served as Senior Aerospace Science Instructor in JROTC, and was a full time instructor and Assistant Director of Faculty Development at the U.S. Air Force Academy.

Space Operations Officers Visit New Mexico Facility

By Tom Coleman, FWC DCD Training

Eighteen students and four instructors from last summer's first Space Operations Officer Qualification Course (SOOQC) made the long journey to New Mexico's Kirtland Air Force Base in July on the first of three site visits that are part of the 11-week course.

Since the start of class, the students, all Army officers, were exposed to a demanding classroom curriculum at the Future Warfare Center, Directorate for Combat Development (FWC DCD) training facility in Colorado Springs, Colo. The students participated in a total of three site visit trips to various Space agencies in the Continental United States to receive hands on training and to give them an overview of the full scope of some of the capabilities of selected Space organizations.

The students were accompanied by Tom Coleman, Dave Berge, Lenny Gehrke, and LTC Jorge Rangel, all part of the FWC DCD Training Cadre. July 6 - 7 were spent visiting various Space-mission oriented units on the Air Force Base. The first place students were able to visit was the Big Crow Program Office where they received an overview briefing and facilities tour.

They learned that the Big Crow Program was established in 1996 with a charter to provide Electronic Warfare environments for testing U.S. military radio frequency sensor, communication and navigation systems. However, over the years the need to exercise ever more sophisticated systems has led to the development of an in-house capability that far exceeds Big Crow's original charter and to a customer base that extends throughout and beyond the military services.

Big Crow's mission and capabilities now span the electronic spectrum, encompassing Electronic Warfare, telemetry, radar and electro-optical systems. Mobile and deployable worldwide, the Big Crow program offers a variety of unique capabilities to the nation's research, development, test and evaluation (RDT&E), training and commercial communities. The students were also able to visit a variety of these related organizations and learn firsthand, how Space support is provided to the warfighter.

The students then visited the Air Force Research Laboratory (AFRL) headquarters building and received an overview briefing and guided tour of the facilities. Part of the tour included the Composite Materials Lab where students asked lots of questions and the laboratory folks were quick to provide thorough and accurate answers.

In addition to the AFRL Composite Material Lab tour, the students received a briefing and tour at the AFRL's Aerospace Engineering Facility.

Located on the west side of Kirtland, the facility is a "one-stop shop" for Space experiment integration, verification and testing. Its scientists and engineers test

Training Insights

by Larry Mize

MEET THE FWC-DCD TRAINERS. Beginning in this edition, you will have the opportunity to hear from your Space trainers who design, develop, plan and execute your Space education and training opportunities. It will be a pleasure to introduce your trainers as they contribute quarterly articles to your Army Space Journal. In this issue, Tom Coleman, Chief Curriculum and Faculty Development wrote about a recent site visit to Kirtland Air Force Base in an article on page 8F.

Larry Mize serves as Chief of Training and Education for the Future Warfare Center, Directorate of Combat Development. Mize graduated from Xavier University in Cincinnati, Ohio with a Bachelor of Science degree in Math. He entered active service in the U.S. Navy, serving as a commissioned officer specializing in Naval Intelligence. He served operational and staff tours of duty associated with aircraft carrier combat deployments to Southeast Asia, on board service combatant ships deployed to the Middle East/Persian Gulf, on the staff of Commander Middle East Forces home ported in Manama, Bahrain, and in direct support of Naval Special Warfare Forces (SEALS). He attended French language training at the Defense Language Institute in Monterrey, Calif., and subsequently served as U.S. Naval Liaison Officer to the Commander French Forces Indian Ocean/ French Foreign Legion in Djibouti. He attended the Naval Postgraduate School in Monterrey, Calif., and was awarded an MS in Space Systems Technology in 1986. In 2000 he joined ACS Defense Inc., and supported the development of Tactics, Techniques, and Procedures (TTP) doctrine for U.S. Space Command's new Computer Network Defense and Computer Network Attack missions. Mize then entered civil service as an Information Operations Warfare Specialist with Army Space Command

2006 FA40 Course Update

SOOQC 06-01 runs Jun. 08 - Aug. 18, 2006
SOOQC 06-02 runs Sept. 7 - Nov. 17, 2006

These 11-week courses include:

- incorporation of National Security Space Institute (NSSI) 4-week Space 200 course as the space fundamentals phase of SOOQC
- 5-days of SCI-level Space Operations Training (must have "FINAL" Top Secret/ SCI clearance to be read-on)

Contact: Larry Mize, SMDC FWC DCD Chief of Training at: larry.mize@smdc-cs.army.mil (719) 554-4545 for more information.

NSSI Space 300 pilot Course FY06

NSSI completed the first two prototype Space 300 courses in Oct. 2005 and Feb. 2006. The four-weeks long course serves as the capstone course for continuing Space professional development and expands the purview established within Space 200 and one's own career to encompass a truly National perspective, to include considerations of joint, National, civil, commercial and foreign Space. The reading load is heavy, both prerequisite and during the course, and the evaluations are thought provoking, essay-style tests. LTC Tom James and MAJ(P) Robert Guerriero attended and represented SMDC/ARSTRAT. FWC DCD has worked in close coordination with NSSI in developming the course and evaluates the course as a critical vehicle for continued professional development for FA40 COL, LTC. Follow-on pilots are scheduled for:

- SP300 06-B: 08 May 06 - 02 Jun 06
- SP300 06-C: 21 Aug 06 - 15 Sep 06

Contact: LTC Clay Scherer, Chief of FA40 Proponent Office, Clay.Scherer@smdc.army.mil, (703) 602-1508 DSN 332 for more information and quotas.

Army Element at NSSI Expands Responsibilities

The Army Element at the National Security Space Institute coordinates as FWC DCD's onsite integrator. The chief of the element is LTC Jorge Rangel. LTC Rich Wolfe, MAJ Tod Pingrey and MAJ Patrick O'Brien are instructional staff. With the recent establishment of MG (SEL) Erica Steuterman as chancellor, and the arrival of other service and national agency representatives, FWC DCD has designated Wolfe as Army liaison to NSSI. The position parallels similar assignments on the part of the Navy, Marines and national agencies. His duties will include formalizing the NSSI/Army partnership via an MOA, assessing Army educational requirements and representing DCD interests. Rangel remains chief of the element, providing oversight, training and management of the assigned Army instructors. Wolfe will focus on direct support to the chancellor within the NSSI command section while Rangel will focus on the academic side, working with the school heads and course directors.

Army Element NSSI contact info: jorge.rangel@afspc.af.mil (719) 593-8794 Ext 30o; richard.wolfe@afspc.af.mil (719) 593-8794 Ext 369; clifton.pingrey@afspc.af.mil (719) 593-8794 Ext 125; patrick.obrien@afspc.af.mil (719) 593-8794 Ext 369

American Military University

American Military University and FWC DCD have an existing MOA wherein SOOQC graduates receive 15 graduate hours credit to be applied towards an AMU MS Space Operations degree. With 2005 graduates and all graduates thereafter, AMU has taken this MOA one step further with the offer of a 25 percent partial scholarship to one graduate. FWC DCD conducts a formal selection board and the first recipients were MAJ Larry Roberts and MAJ David Reid.

Contact Tom Coleman, FWC DCD Training, Thomas.coleman@smdc-cs.army.mil for additional information.

FWC-DCD Training Branch and NSSI Web sites. For more information on the above Space Notes or to answer your training questions go to:
-FWC-DCD: http://www.smdc.army.mil/FWC/Training/Training.html
-NSSI: http://www.sopsc.us/index.asp

Space Professional Personnel Update

by LTC Clay Scherer

LTC Clay Scherer is an FA40 officer serving as the Chief, FA40 Personnel Proponent Office. LTC Scherer served previously with U.S. Army Space and Missile Defense Command in the Space Division of the Force Development and Integration Center where he worked on Space Control requirements development. His previous tour was at the Naval Post Graduate School where he completed a Masters of Science in Space Systems Operations. He served as a Field Artillery Officer prior to entering the Space Operations Career Field in 2001.

Air Force Space and Missile Badge

The FA40 Personnel Proponent Office (PPO) is working with the Air Force Leader Development Division at Peterson Air Force Base, Colo., and with the senior leadership in the FA40 community to develop the Army criteria for award and wear of the new Air Force Space Badge. The Air Force approved the Army proposal to wear the Air Force Space and Missile Badge in 2001. In November 2005, the Air Force retired the Air Force Space and Missile Badge and established the Air Force Space Badge. When a Memorandum of Agreement is signed between the Air Force and U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command, the FA40 PPO will send out an announcement to explain the FA40 transition to the new Space Badge. At this time, FA40s are not authorized to wear the new Space Badge. Award of the Space Badge will have increased rigor in the areas of training and certification. It is important to understand that no Soldier will be required to remove the Air Force Space and Missile Badge regardless of subsequent qualification for the new Space Badge. Both badges cannot be worn at the same time but anyone awarded the old Space and Missile Badge can continue to do so.

FA40 Conference

The FA40 Training Conference will be held in conjunction with the Association of the United States Army/ Greater Los Angeles Chapter (GLAC) Conference in Long Beach, Calif. The AUSA/GLAC Conference will be June 1-2, 2006. The FA40 Training Conference is tentatively scheduled for May 30-31, 2006. Details and registration guidance will be disseminated to the FA40s as they become finalized.

OPMS III Review

The Officer Personnel Management System (OPMS) is currently undergoing a lengthy review process that will result in some significant changes to the current OPMS construct. The most notable change will be to the current construct that places officers into four groupings: Operations, Operational Support, Institutional Support and Information Operations (which contains the FA40 Career Field). The new OPMS III construct has not been finalized, however a functional realignment of the basic branches and Career Fields has been approved. The new functional alignment will likely be separated into three categories: Maneuver, Fires & Effects; Operations Support; and Force Sustainment. This three-category design was concurred on by a one and two star general officer steering committee and will be forwarded to a three star GOSC in late January 2006. The FA40 Career Field will be in the Operations Support category in the Network & Space Operations sub-category. The Network & Space Operations sub-category will consist of officers in the Signal branch, Space Operations Career Field, Telecommunications Career Field (FA24) and the Information Systems Automation Career Field (FA53). The OPMS III review is ongoing and will continue through July 2006.

M3P

The Multi-Mission Mobile Processor (M3P) is a Pre-Planned Product Improvement (P3I) for the Army JTAGS but delivery has been moved to FY 2010 in order to incorporate operational requirements not planned for in a DSP capable M3P system. The M3P system is a ground based SBIRS (Space based infrared satellite) system that is designed to provide Direct Downlink of the SBIRS constellation (with HEO/GEO launches) when it has fully been implemented. The Army will eventually field a total of six M3P systems to replace JTAGS.

Initial Qualification Training

1st Space Company operates the Initial Qualification Training at Fort Bliss, Texas internally and provides trained JTAGS operators and Sailors to the field utilizing one of the operational shelters. Additionally, the Navy sends reservists to the JTAGS IQT and periodically in the summer, they support JTAGS forward units with these Sailors during their annual training. IQT will move underneath the SMDC/ARSTRAT Future Warfare Center and Directorate of Combat Development which performs the Training and Doctrine requirements of this command. This final shelter will be retained by the 1st Space Brigade in a Memorandum of Agreement with the Future Warfare Center in the event of a catastrophic loss of another forward JTAGS command system. This fifth system is operationally available for unforeseen operational requirements. Due to the technical requirements and constant upgrades of JTAGS shelters data and voice architecture and initial training of crews — this system serves a valuable non-doctrinal role in Army theater missile warning that will be overcome with the delivery of the M3P system.

talion and the 1st Space Brigade have taken the initiative to task organize and re-station the 1st Space Company (Theater Missile Warning) subordinate elements to better support combatant commanders and take care of Soldiers life cycle and deployment hardships. These measures include forward deploying a fourth JTAGS command system into the PACOM area of responsibility (Japan), which will provide the proper density of equipment and personnel and redundancy for that combatant commander. This fourth JTAGS command system will come from Colorado. Additionally, the personnel allocations for A/2 will move from Colorado to EUCOM where the detachment commander can provide the best support and command relationship to the CENTCOM JTAGS site. Lastly, the contingency mission will no longer be necessary and the Bravo Detachment personnel will be task organized under both the Alpha and Charlie Detachment banners in order to maximize training and operational requirements. This will effectively eliminate augmentation and deployment requirements from the CONUS sites. This solution, on the surface appears to counter the thought process behind Department of Defense and the reduction of forces forward and base them in CONUS as Units of Action. Units of Action are designed to have a training base, a deployable platform and are to be prepared to deploy one in three years. But the reality is that the mission for these Soldiers are not OCONUS until they deploy there (Operation Iraqi Freedom, Operation Enduring Freedom, Sinai, etc.), while JTAGS operators monitor and report Ballistic Missiles 24/7 for combatant commanders today with an indefinite presence forward.

The future of the JTAGS system is designed to provide combatant commanders with a system that is relevant, decisive, and eventually integrated into Limited Defensive Operations (LDO) and Ballistic Missile Defense Systems (BMDS) as an early alerting and queuing system. This provides commanders with a continuous, assured, ballistic missile early warning and queuing system in-theater. It is both an insurance policy and force multiplier by supporting all tenants of global missile defense; attack operations, active defense, passive defense and battle management command, control, communications, computers and intelligence. In-theater missile defense remains viable today and will be for the next 10-15 years. This mission set includes strategic and tactical ballistic missile warning for centimetric early warning, enhanced IR coverage and support of LDO and BMDS and other strategic classified missions.

In summary, the contingency mission may be reduced or eliminated due to the advent of a fourth system forward, giving each combatant commander or possible combined joint task force commander coverage with a primary and backup system available to cover all areas of interest in theaters with the potential to launch ballistic missile attacks. The areas that will not be covered have little or no possibility of ballistic missile use and most of these could be covered with existing JTAGS units already in place. This allows two detachment headquarters to provide hemispheric support to all combatant commanders with Alpha Detachment maintaining support in the West and Charlie Detachment providing the same in the East.

MAJ J. Dave Price is the 1st Space Company Commander (Theater Missile Warning) in Colorado Springs, Colo and the first FA40 Space Operations branch transfer. He commands three detachment commands worldwide in support of combatant commanders. He most recently served with the 3rd Armored Calvary Regiment during Operation Iraqi Freedom and is a graduate of the Greek Command and Staff College in Thessaloniki, Greece and the final Interservice Space Intelligence and Operations Course (ISIOC).

Organize As We Fight Army Theater Missile Warning — JTAGS

By MAJ J. Dave Price

Warfighting commanders need a reliable, responsive and autonomous capability to provide direct downlink to report on tactical ballistic missiles using Defense Support Program satellites or IR (infrared) data for early warning and alerting. Operations have demonstrated a need and Joint Tactical Ground Stations (JTAGS) testing began in 1993. JTAGS operates today as the in-theater (processing of IR data) transportable component of the Theater Event System comprised additionally of tactical detection and reporting and the U.S. Air Force Mission Control Station. The Theater Event System Concept coordinates support of all three systems, utilizing their individual strengths to offset vulnerabilities. JTAGS communication and data architecture includes Ultra High Frequency and tactical broadcast of Integrated Broadcast System — Interactive (Ballistic Missile Defense System), Integrated Broadcast System — Simplex (Ballistic Missile Defense System), Joint Tactical Information Distribution System and Joint Range Extension, TAB 37 VMF, and various voice and T-1 backup measures in the first to detect, first to report network. JTAGS provides ballistic missile warning and enhanced IR coverage 24/7, 365 days a year.

The 1st Space Company (Theater Missile Warning) has committed three of the five JTAGS command operational systems available forward to the field in Korea (Pacific Command), Stuttgart (European Command) and Qatar (Central Command). JTAGS sections will remain in operation until the fielding of the Multi Mission Mobile Processor (see M3P note) is completed around Fiscal Year 2010. JTAGS is operated by U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command and the 1st Space Brigade (U.S. Army) — which is headquartered at Peterson Air Force Base, Colo. The 1st Space Company (Theater Missile Warning) command and controls three detachments and six sections with 109 officers and Soldiers deployed throughout the world. The U.S. Navy and the Naval Network and Space Operations Center (NNSOC) supports JTAGS operations by providing 16 Naval JTAGS operators and one officer outside the Continental United States (OCONUS). U.S. Strategic Command has recently delegated operational control of JTAGS operations to the newly created Joint Functional Component Command-Space and Global Strike (S&GS) command at Vandenberg Air Force Base, Calif.

The 1st Space Brigade will re-task organize with four forward and one strategic reserve back for multiple purposes to include operational responsiveness to all combatant commanders with the added value of providing Soldier predictability, better permanent change of station rotations, and family quality of life. The concept of operations for JTAGS provides for one detachment headquarters and one to two sections during peace or wartime activity. Today, the three detachments headquarters are in EUCOM, PACOM and in Texas with the remaining two operational (command systems) shelters in Colorado Springs and at Fort Bliss, Texas (schoolhouse). Alpha Detachment in EUCOM provides command and control for Alpha Detachment/1st Section (A/1) in Stuttgart and Alpha Detachment/2nd Section (A/2) in CENTCOM which are mutually supporting theaters. Charlie Detachment in PACOM provides command and control over one section (C/1) at Osan Air Base in Korea. Bravo Detachment has the contingency operations mission and Individual Qualification Training (see Initial Qualification Training note) and provides command and control over the schoolhouse and two contingency sections, Bravo Detachment/2nd Section (B/2) in Texas (which has no TOE equipment) and Charlie Detachment/2nd Section (C/2) currently in Colorado Springs, Colo. All the allocations of A/2 personnel (15 Soldiers) currently reside in Colorado as well.

The problem set reflects that 100 percent of the JTAGS mission is forward in theaters supporting combatant commanders while 67 percent of the unit personnel are stationed in the continental United States (CONUS). The 1st Space Bat-

Across: The Joint Tactical Ground Station first Unit Equipped ceremony in Germany featured VIPs, and a new guidon design for the unit.

Below: The JTAGS system can deploy anywhere in the world in support of the warfighter.

plementation processes were working at what can only be considered breakneck speed, other significant factors were at play. The first factor is that joint considerations exerted a unique influence on the force development process. JTAGS was fielded to satisfy both Army and Navy operational requirements. As a result of the departure from most Department of Defense programs, the joint aspects of JTAGS extended to the crew level. Each JTAGS is manned by a mixed crew of Army and Navy personnel. The diverse nature of system manning generated unique issues and additional coordinating requirements throughout the force development process.

Another factor was that a tri-service training approach was adopted. Existing U.S. Air Force training capabilities were leveraged to support JTAGS training requirements. This resulted in cost savings to the Army. The operators in training were to receive Initial Qualification Training from the Air Force Education Training Command. In the end it was determined that the tri-service training concept merited closer scrutiny than it initially received. Initial classes for JTAGS personnel rated the quality of training as low, and a series of other training issues arose prior to JTAGS fielding, to include disagreements over service responsibilities.

Finally, in a very positive note, the JTAGS doctrinal development efforts have proven remarkably durable. The JTAGS Operational Concept established the framework for JTAGS-related doctrinal development in 1993. With minor revisions, this operational concept remains valid to the present, even though theater missile defense concepts and doctrine have evolved significantly over time.

The development process for JTAGS was concluded very rapidly. The first unit equipped with a JTAGS production system occurred in February 1997, less than four years after the JTAGS Product Office was activated.

In conclusion, JTAGS is a high-impact system, capable of supporting all four pillars of theater missile defense. The system is versatile enough to be tailored to unique requirements within any of the four regional theaters of operations, to include the need to support allies. JTAGS successfully addresses many of the theater missile defense issues that affected the U.S. military operations in Desert Storm.

JTAGS provides an excellent case study not only for the rapid fielding of a warfighting system, but also on multi-service research and development, acquisition, training and unit operations. As the United States military evolves with its emphasis on joint capabilities and operations, JTAGS provides important insights for all services.

Valuable lessons learned can be gleaned from the JTAGS experience in two respects. First, the system's rapid progress in the phases of force development, combat development and materiel development resulted from a demonstrated need to provide timely, in-theater ballistic missile early warning. Second, the system's high operational tempo derives from both real-world and exercise support requirements, and necessitates the constant awareness of Army leaders concerning system manning requirements and rates of personnel turnover.

JTAGS development has set a standard that is hard to beat. In less than four years it went from concept to concrete. In today's demanding and changing political and military environment JTAGS continues to accomplish a valuable and meaningful mission.

Ed White has 18 years experience in military public affairs and is currently an editorial assistant working for the Future Warfare Center Directorate of Combat of Development to help produce the Army Space Journal.

various sensors."

Based on these defined real world needs, four pillars of Theater Missile Defense were defined.

Passive Defense is one of the basic elements of today's Joint Tactical Ground Station (JTAGS) effectiveness. Once a launch is detected, JTAGS computers can determine, within a few seconds, the approximate impact point of the missile and then warnings begin to go out to the affected units. This gives component commanders time to take measures to protect their Soldiers.

Attack Operations is defined by efforts to eliminate mobile and fixed launchers. JTAGS gives an estimated launch point within seconds of detecting the launch. This gives air and ground elements time and information to possibly mount an attack against the asset.

Active Defense means that early warning of the launch are given to defensive elements, such as Patriot batteries, so they can slew their missiles to the direction of approach and have them ready to fire once their radars acquire the incoming missile. These advance warnings, although measured in seconds or minutes provide key preparation time for the defensive missile crews, allowing them to be more set for the incoming missile, more prepared to engage and shoot it down. One feature of this capability is that no matter where the incoming missile is shot down, there is always collateral debris. The farther away from U.S. and Coalition lines and population centers the intercept takes place, the less collateral damage there is likely to be.

Command, Control, Communications, Computers and Intelligence (C4I) covers the up-line and lateral reporting capabilities that gives the various component commanders battlefield situational awareness. It also gives valuable information and intelligence such as launch point prediction to the right command elements to conduct counter battery operations.

Today's JTAGS system was born and has evolved from these requirements. The system was fast tracked in both the combat and force development arenas, allowing units to be activated and equipped in the fastest manner possible. Enablers to this process included strong and continued emphasis placed by senior Army leaders on addressing the critical theater missile defense early warning deficiencies identified during Operation Desert Shield/Desert Storm.

A second enabler was the establishment of expedited staffing and execution processes for force development. This resulted in the completion of all five phases of the process in one quarter of the time typically allocated. The five phases include; Generate Requirements; Design Organizations; Develop Organizational Models; Determine Organizational Authorizations; and finally Document Organizational Authorizations.

The third enabler was the close and continuous interaction between Army Staff and the U. S. Army Air Defense Artillery School personnel responsible for JTAGS force development and combat development respectively. These interactions also included the JTAGS materiel developers and end users.

The final enabler was the rapid execution of combat development actions by the U. S. Army Air Defense Artillery School. While the expedited staffing and im-

The History of JTAGS

A case study for rapid fielding, multi-Service R&D, and major impacts at tactical, operational and strategic levels

By Ed White

The threat posed by tactical ballistic missiles began getting serious attention from the Army and the joint community in the late 1980s. In 1988, the Satellite Early Warning System demonstration (SEWS) was initiated to experiment with theater ballistic missile (TBM) early warning concepts. The timing seems almost prophetic, given 20/20 hindsight, when the actions Saddam Hussein took, that necessitated the first Gulf War are considered. While the efforts of TBM defense during that conflict were generally effective, it was recognized that the TBM threat genie was out of the bottle and a lot more work needed to be done to develop a practical, functional defense.

After Action Reports from the Gulf War indicated a number of flaws in the existing early warning and cueing systems available to the warfighter at the time. One major deficiency was that the flight time of a SCUD missile launched against Saudi Arabia was approximately seven minutes — and the existing early warning system often was unable to generate an early warning message before the missile impacted. This was due to the message traveling first back to the United States through the U.S. Space Command, before finally being transmitted back into theater to the affected units.

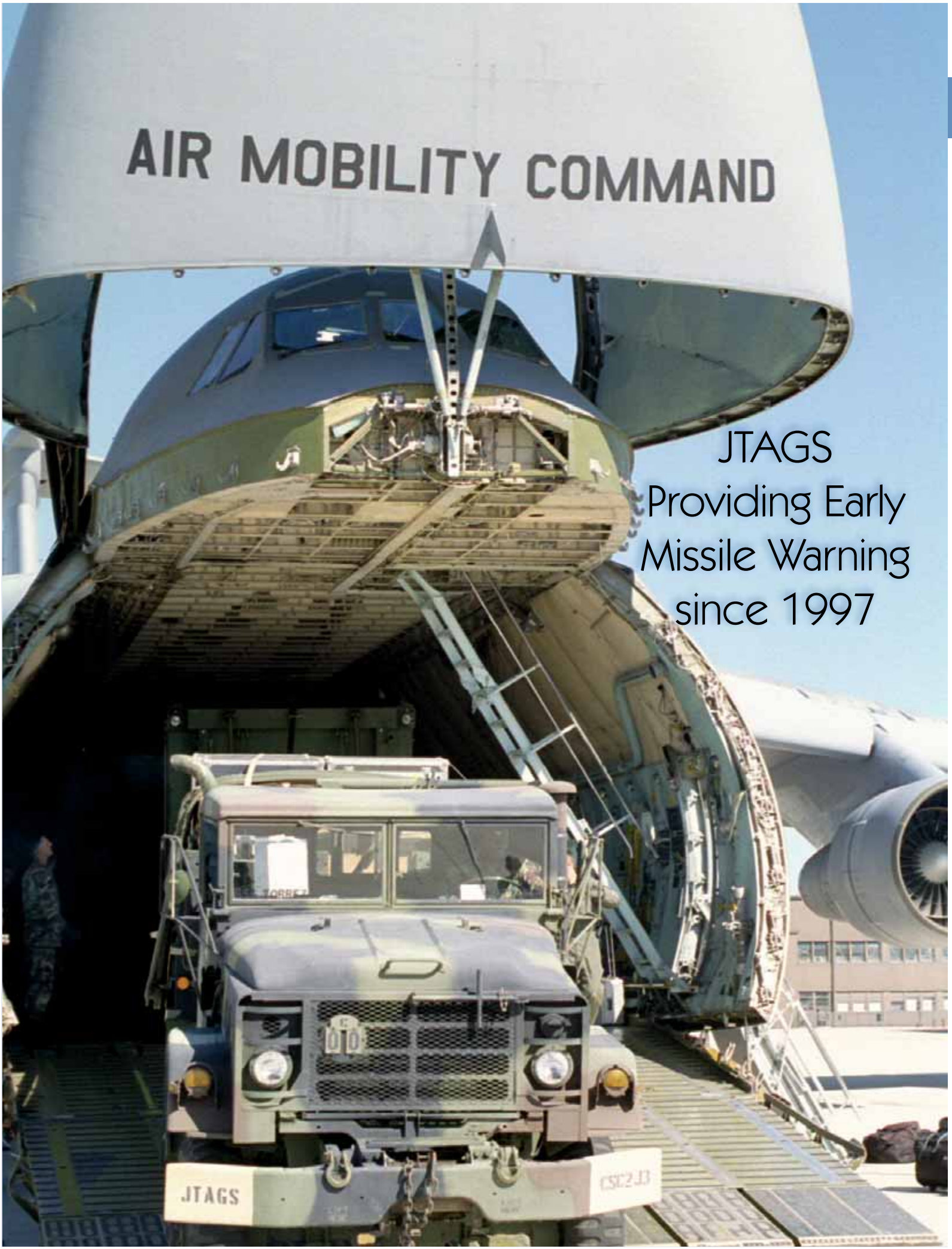
False alarms were also common. Whenever an alarm went out, U.S. and coalition operations in the affected areas had to stop while the troops took passive measures to ensure their safety. This played havoc with Coalition force operational tempo.

The Tactical Event Reporting System of the time was unable to provide specific areas of probable impact within theater and so the entire theater had to literally stop and don their protective gear every time an alert was given, once again, playing havoc with operational tempo.

On the other hand, some units, particularly air defense units, were not given any warning prior to some SCUD attacks. Similarly, a number of rear area support units reported that they did not receive TBM warnings during certain engagements.

The Tactical Events Reporting System was not capable of providing launch point estimation data and so, could not effectively support aerial attack operations against SCUD launchers.

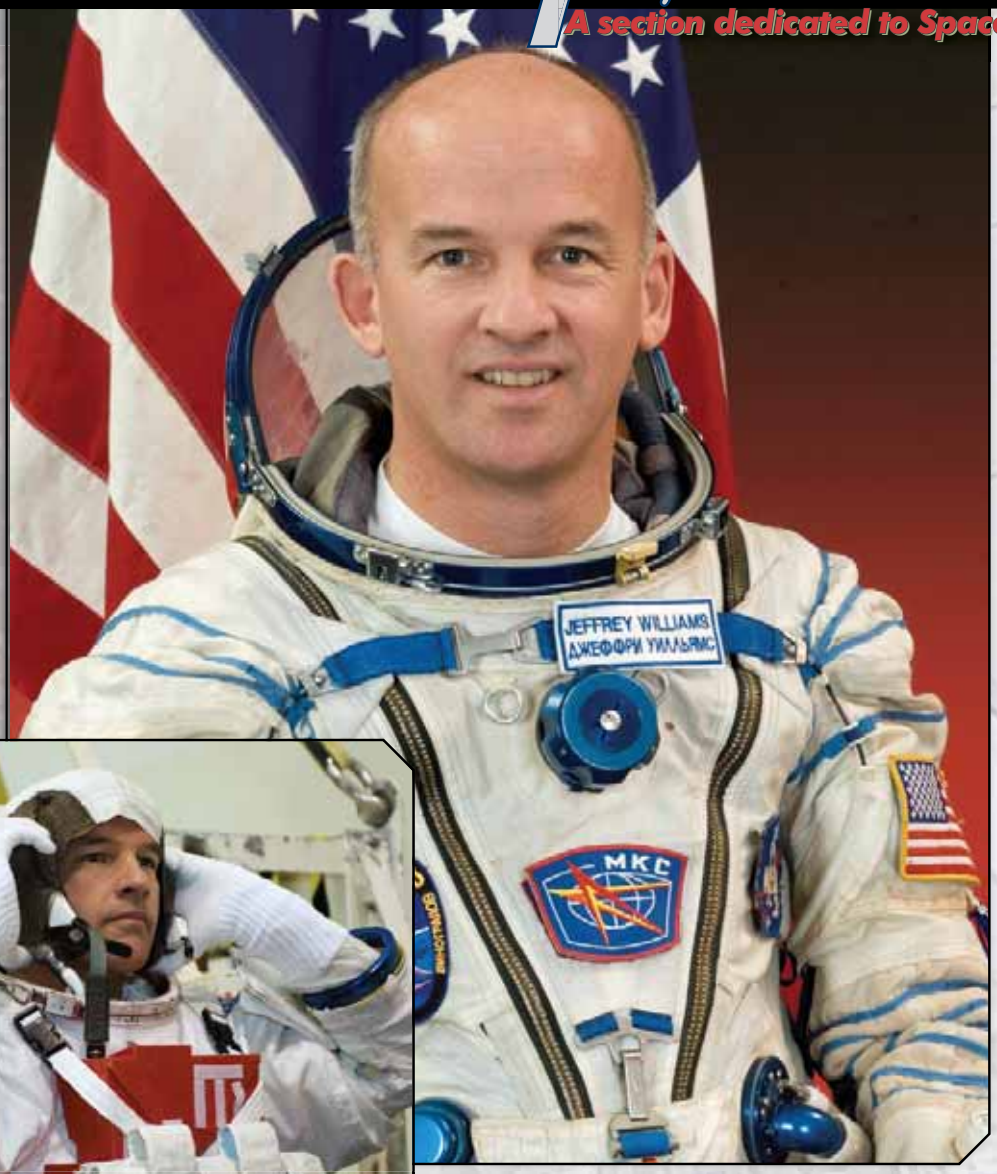
These shortfalls were highlighted in the Joint Requirements Oversight Council Theater Missile Defense Mission Needs Statement of November, 1991. The report stated that, "current C3I (command, control, computers and intelligence) systems are deficient in the capability to detect and target theater missile systems and to coordinate attack operations and active defense responses within enemy missile operating timelines. Limitations currently exist in the U.S. ability to perform rapid and accurate theater missile launch detection, definition of operating areas of hostile land mobile theater missile systems, identification and location." The Theater Missile Defense Mission Needs Statement also highlighted the requirement for a surveillance system capable of providing "timely warning and assessment of the threat, including accurate target discrimination and provide for cueing and cross-cueing of



JTAGS Providing Early Missile Warning since 1997

The Flipside

A section dedicated to Space Operations



First active–duty Army Soldier serving tour aboard the International Space Station

Army Astronaut COL Jeffrey Williams, is one of four members of the thirteenth crew of the International Space Station, which took up residence in late March. Williams, a veteran of STS 101, is serving as the flight engineer and NASA science officer and will perform a spacewalk, which will focus on continued outfitting of the station to prepare external hardware for the addition of station elements and tending to external science experiments.